BIG DOINGS AT IBM Big Blue snaps up Informix database unit; touts self-healing, load-balancing server technologies. Page 8.

EYEING ENUM Support builds for Enum technology, a bridge between public switched telephone network and the Internet. Page 6.

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NetworkWorld

April 30, 2001 Volume 18, Number 18

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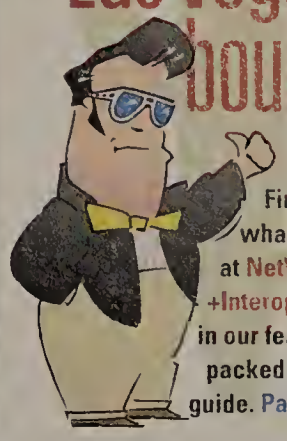

Find out what's hot at NetWorld +Interop 2001 in our feature-packed show guide. Page 51.

LOCKDOWN

Tired of end users messing up their desktops, then calling the help desk to bail them out?

Lockdown software can eliminate the problem. ►► Page 42

Microsoft pumping up directory for Web use

BY JOHN FONTANA

REDMOND, WASH. — The next version of Microsoft's Active Directory will include new features that begin to position the directory for use on the Web, but observers say the additions are only the first steps on a difficult path.

Microsoft bills the move as a major advancement for Active Directory, which today is geared for use within organizations as an internal network operating system directory. Microsoft wants to extend the directory's role to include managing users who are outside of an organization's firewall, such as, e-commerce customers and other Web site visitors.

First Microsoft must break down barriers that include Active Directory's proprietary interfaces, which hamper effective integration with the open environment of the Internet.

"On the Web, you want an independent directory server that isn't bound to NOS file and print or security. You want it more generic," says Jamie Lewis, president of The Burton Group. "Now Active Directory assumes users are [Windows 2000] NOS users, and in theory you could grant NOS privileges to users who are only Internet users."

Microsoft will head in that direction by adding two Lightweight Directory Access Protocol (LDAP) enhancements in Windows 2002 Server, formerly code-named Whistler. Microsoft has worked with Netegrity, Oblix, OpenNetwork Technologies and Securant Technologies, vendors of Web-based provisioning and access control software, on integrating Active Directory. The Windows 2002 enhancements include a performance boost in handling LDAP authentication requests and support for inetOrgPerson,

See **Microsoft**, page 76

Is 10G Ethernet for you?

BY PHIL HOCHMUTH

While observers have largely preordained 10 Gigabit Ethernet as a carrier technology, Enterasys Networks is betting companies will be hungry for that kind of bandwidth too.

The Cabletron spinoff this week will announce the industry's first prestandard 10 Gigabit Ethernet product, a 12-port Gigabit Ethernet box with a single 10G bit/sec up-link,

See **10G**, page 75

Vendors ready Gigabit Ethernet products for the masses. Page 15.

Online

Find out which companies are banking on the success of 10 Gigabit Ethernet.

DocFinder: 4053

www.nwfusion.com

Don't blame the network

Profiling software can find real causes behind slow applications.

BY DENISE DUBIE

When pharmacists at Walgreens found themselves twiddling their thumbs for close to a minute each time they'd make a simple database request, the company's 12-year-old satellite network became an easy target for blame.

"I used to go to meetings and all the managers would be sitting there with their shotguns cocked, blaming the network," says Joe Rosa, who until recently was Walgreens' network communications engineer/network analyst.

But as it turns out, the network — which provides connectivity to 3,000

See **Profiling**, page 74

LensCrafters' Chris Ray (left) and Matt Groom used application profiling software to shape up a poorly performing application

ROLLO PHOTOGRAPHY

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APRIL 30, 2001

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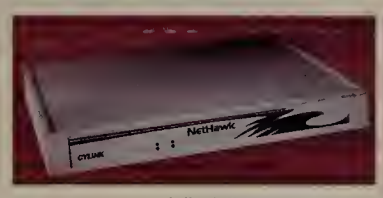

Cylink's NetHawk box has certificate authority features.

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The Quarry IQ4000 is a scaled-down version of an earlier product.

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Tester's Choice: David Newman on all-optical nets. **PAGE 50**

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Tim Kuhfuss: Wanted: A better way to keep in touch. **Page 39.**

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Backspin: The cat is out of the bag (wow). **Page 78.**

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CIRCULATION: Phone: (508) 490-6444; Fax: (508) 490-6400; E-mail: nwcirc@nww.com; **STAFF:** See the masthead on page 10 for more contact information. **REPRINTS:** (717) 399-1900

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SAN primer

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FORUMS

Third-party tools for Novell

A user seeks suggestions in general, along with specific advice on TaskMaster from Avanti. Used it? What do you think? **DocFinder: 4039**

Ameritech as monopoly

A reader expresses her feelings on rate hikes by Ameritech. Are they justified? Jump into the discussion. **DocFinder: 4040**

DHCP lease on RAS?

A user is trying to find a workaround for a Microsoft RAS limitation: A DHCP server won't lease DHCP addresses to VPN clients. Suggestions? **DocFinder: 4041**

Remote disk management in Win 2000

Another user with full admin rights says he gets only an error message when he tries to connect to a remote computer. Read more details, offer suggestions. **DocFinder: 4042**

Need more info?

Network World Fusion's search box finds the information for you. Check it out on the Home Page. **DocFinder: 3841**

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CARUSO'S CACHE

The best of the NetFlash daily newsletter

Microsoft gives a virus to its support customers

It seems Microsoft may actually have infected its users with a virus that had taken up residence on one of its Web servers. This server is reserved for Premier Support and Microsoft Gold Certified Partners, so you would only have gotten the virus (which has since been eradicated) if you had special status. Ah, the privileges of membership! **DocFinder: 4046**

VeriSign expands domain names to over 350 languages

Web sites have long abused the English language in their domain names, and you'd be hard pressed to find a word that is still available. But now you have many more options, as 180 more languages are now supported by VeriSign for domain names. If your word is taken, simply find the equivalent in, say, Armenian, and you're good to go. **DocFinder: 4047**

ISS checks for wireless LAN vulnerabilities

One of the factors holding back the adoption of wireless LAN technology is the concern that many users have over security. After all, in some cases it might be easier for hackers to pluck packets out of the airwaves than to tap a wire. That's why security consultant Internet Security Systems is turning its eyes to this emerging technology. **DocFinder: 4048**

Survey: Age bias seen by over-45 techies

Have you seen age discrimination in your IT organization? According to a recent survey, there's a good chance you have. Of course, the older folks are saying there is a bias because they are older, and the younger folks are saying there is a bias because they are younger. **DocFinder: 4049**

— Jeff Caruso, managing editor, online news

Sign up for this e-mail newsletter online. DocFinder: 3850

COLUMNISTS

Keeping Current

Never say never to Internet taxes

Fred McClimans says the Bush administration should knock off the "Read my lips stuff" and explains why a permanent ban on Internet taxes is wrong. **DocFinder: 3979**

Help Desk

Blending networks

A user has to figure out how to meld Microsoft and NetWare networks. He's thinking of using Gateway Service for NetWare to let the Microsoft users access Novell resources. Ron Nutter discusses the option. **DocFinder: 4043**

Compendium

Computing under the influence

Fusion Executive Editor Adam Gaffin finds a report on soused Brits messing up their online finances, looks at why the French really hate the Internet and finds an Internet appliance you can toast. **DocFinder: 4044**

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We've made it easy to access articles and resources online. Simply enter the four-digit DocFinder number in the search box on the home page, and you'll jump directly to the requested information.

NEWS BRIEFS, APRIL 30, 2001

Spate of Chinese hack attacks feared

Authorities are warning network administrators that U.S. Web sites and e-mail servers might come under increased attack from Chinese hackers this week. The National Infrastructure Protection Center (NIPC), the part of the FBI responsible for protecting the nation's computer networks against hackers and cyberterrorists, cited recent tension between the U.S. and China when it issued an advisory notice last week. Chinese hackers have publicly discussed stepping up their activity today through May 7, the NIPC said. This period coincides with two Chinese public holidays, May Day on May 1 and Youth Day on May 4. May 7 marks the anniversary of the bombing of China's embassy in Belgrade, Yugoslavia.

Sun unveils peer-to-peer project

Sun last week formally took the wraps off its Web-based, open source software platform called JXTA, which the company says will provide a framework for building peer-to-peer applications. Sun's peer-to-peer development began last year as the Juxtapose research project, or JXTA, led by Sun Chief Scientist Bill Joy. InfraSearch, a start-up recently acquired by Sun, is contributing peer-to-peer search technology. Sun says it plans to push for peer-to-peer standards and might commercialize its own peer-to-peer software and services later this summer.

Led by Chief Scientist Bill Joy, Sun may commercialize its peer-to-peer software later this summer.

FBI arrests Russian bank hacks

Federal agents in Seattle last week arrested two Russians, Alexey Ivanov and Vasiliy Gorshkov, for hacking their way into banks in Texas and California, as well as the Internet payments company PayPal, from computers located in Chelyabinsk, Russia. The two are also suspected of stealing 15,700 credit card numbers from Western Union last September. FBI crime specialists set up a sting to lure the Russians to the U.S. by setting up a fake company called "Invita," which asked Ivanov if he would like to consult for them.

The agents challenged Ivanov to hack into Invita's online computers, and when he succeeded, they asked him to come to the U.S. for an interview. The FBI hacked its way into Gorshkov's computer by means of an intercepted "sniffed" password.

Conner leaves Nortel for Entrust

William Conner, president of Nortel Network's eBusiness Solutions group, last week left that position to become president and CEO of security software vendor Entrust Technologies. Conner's Nortel duties will be assumed by Joseph Davis, the company's president of commercial markets for eBusiness Solutions. Nortel recently announced a 12 cent-per-share loss for its first quarter of fiscal 2001, and 5,000 more job cuts. Nortel will axe 20,000 positions by mid-year. Conner has served on the board of directors of Entrust Technologies since 1997.

William Conner left Nortel as the company continues to cut its workforce.

NTT DoCoMo to delay 3G service

NTT DoCoMo, Japan's largest cellular telecommunications carrier and one the biggest supporters of 3G wireless services, is delaying the commercial launch of its 3G service by five months until October this year. Instead the company will focus on limited trials. DoCoMo had originally promised a rollout in late May. The service is pegged as the world's first commercial 3G service.

Pilot Network crashes and burns

Pilot Network Services, the Alameda, Calif., provider of managed security services, announced through a press release last week that it has laid off all its employees and suspended business operations.

The company was unable to provide details on the sudden decision. The company, founded by CEO Marketta Silvera, provided services to customers including Rand, Twentieth Century Fox, PeopleSoft and *Newsweek*. The Nasdaq stock exchange notified Pilot in March that it would be delisted based on Pilot's failure to maintain at least $4 million in net tangible assets.

Commerce One, Microsoft team up

Commerce One and Microsoft last week announced a partnership to lure more suppliers into business-to-business marketplaces. Under the deal, Microsoft will loan $25 million to Commerce One to develop software that would support Microsoft's software inside Commerce One's marketplaces. Commerce One MarketSite Gateway for Biz Talk would let businesses connect their own business processes with their trading partners' through a Commerce One-built marketplace.

The Commerce One MarketSite Connectivity Kit for BizTalk Server and Visual Studio would help integrate applications and business services with Commerce One-built marketplaces.

IP telephony technology finding wider acceptance

BY CAROLYN DUFFY MARSAN

An emerging technology called Enum that integrates the public switched telephone network and the Internet is becoming, well, enormous.

Enum lets users type a telephone number into a Web browser and find a corresponding URL, e-mail address or IP address. Six months after the Internet engineering community finalized the Enum specification, this simple but powerful concept has attracted a groundswell of commercial and regulatory interest.

The following Enum developments recently occurred:

- Six IP telephony equipment and software vendors announced plans to support Enum in products due out this fall.
- The U.S. government convened an industry advisory group that will issue recommendations in June on how best to deploy Enum.
- And three U.S. companies — start-up NetNumber, dot-com registry VeriSign and telephone database operator NeuStar — are vying for the right to operate a central database of Enum registrations.

"It's pretty clear from any number of pieces of evidence that Enum is getting significant traction within the carrier and supplier communities," says Richard Shockey, co-chair of the Internet Engineering Task Force's Enum working group and an executive with NeuStar. "It's not a question of if Enum is going to be deployed, it's when Enum is going to be deployed."

That's good news for network managers interested in combining voice and data traffic over the Internet because Enum provides a much-needed service for connecting Internet telephone calls. Enum also offers the promise of giving employees a single point of contact for all their communications devices, including PCs, fax machines, handheld computers and cell phones.

"Whether you're running an enterprise or a carrier network, you're going to have to have Enum or Enum-like capabilities," says David Fraley, a principal analyst with Gartner Group. "You have to be able to convert a telephone number into an IP address, and that's the heart of Enum."

"I'm very, very hot on this technology," Fraley adds.

Fraley isn't the only one who is optimistic about Enum.

More than 400 companies, including network vendors and carriers, are participating in VeriSign's Enum test bed, which launched last December. VeriSign's free test bed, operated with the help of Telcordia Technologies, lets companies register real telephone numbers in 10 country codes.

See **Enum**, page 76

Vendors embrace Enum

In the past two months, six IP telephony vendors have announced plans to support Enum:

- NexTone Communications
- Pingtel
- BroadSoft
- Pagoo
- SS8 Networks
- Indigo Software

Corrections

In the review "Desktop management tool time" (April 9, page 50), two of Cognet's products were interchanged. Cognet 3.5 is the software management tool and mylTware 4.0 is the asset and policy management solution. In addition, the pricing of each product should have been $99 combined, and $75 per seat and $40 per seat, respectively.

In a chart within the "Shopping for speed" article (April 16, page 51), the speed of one-way satellite should be 28K bit/sec. Also, the average monthly cost for POTS should be listed as $35 (assuming teleworkers have a second phone line).

Gigabit capability on your current Cat-5 network isn't a pipe dream. With Intel® PRO/1000 T Server Adapters you can increase your bandwidth capacity by a massive ten times. These gigabit adapters work with your existing 10/100Mbps network and will seamlessly ramp up to 1000Mbps. And they're not just super-fast. They're super-flexible. Intel PRO/1000 T Server Adapters offer advanced server features like load balancing and fault tolerance across multiple operating systems. Intel® PRO Network Connections, the intelligent way to connect. For more information and a trial kit, visit intel.com/network/go/cat5/

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IBM wants Informix customers onboard

BY JOHN COX

ARMONK, N.Y. — There is reason for Informix customers to be both relieved and nervous in the wake of last week's announcement by IBM that it plans to buy Informix's database business for $1 billion.

Relieved, because they will now deal with a vendor that observers agree is going to be around for the long haul, whereas Informix has had its ups and downs in recent years. Nervous, because migrating important applications on Informix software to a database such as IBM's DB2 could be difficult, if not impossible.

So far, IBM is saying what users want to hear. Janet Perna, general manager of IBM's data management division, says IBM will continue to support and enhance existing Informix products. An updated version of the Informix database, now in beta test, will be released on schedule this summer, she says.

"We're going to be promoting DB2 . . . but we're not asking [Informix users] to rip out what they have," she adds.

Perna says DB2 Universal Database will continue to be IBM's strategic platform and the company will encourage Informix customers to turn to DB2 for supporting new applications.

IBM's approach seems logical, observers say.

"Most of these mission-critical applications have been custom-built on Informix," says Stuart Litel, a database consultant who's specialized in Informix software for 17 years. "It will cost companies a lot of money to re-create these applications [on DB2 or products from Oracle and others]."

"The job of moving an See **Informix**, page 75

IBM earmarks billions for 'smart' server

Company makes major investment in developing more-automated server management.

BY DENI CONNOR

ARMONK, N.Y. — IBM is investing billions in research toward developing self-managing, self-configuring, and self-healing servers that require little human interaction.

The company is devoting 25% of its server research and development budget to technology that will free IT professionals from mundane and often difficult, time-consuming tasks whose outcomes are hard to predict, such as capacity planning and server failovers.

While Compaq, Hewlett-Packard and Dell each have self-management server technology, none of the companies would comment on the amount they invest in such technology.

Called Project Eliza, IBM's "intelligent" hardware and software will in the next few years appear across IBM's server family — from mainframes, AS/400s and RS/6000s to its Intel-based boxes. As soon as next year IBM servers may be able to:

- Activate built-in redundant components when failures occur.
- Automatically balance bandwidth or application capacity when necessary.
- Monitor for intrusions.
- Cluster with other servers on the fly to balance workload and for failover, redundancy and increased availability.
- Automatically configure and install operating systems, applications and data.

Data demands

The amount of data on the Internet is going to continue to grow at an explosive rate, says Mike Nelson, director for Internet technology and strategy at IBM. "There's no way we'll be able to deploy enough servers and make use of that data if we don't make the server easier to install and manage. You can't train and hire enough IT professionals to take care of that data if we're using the systems we are today."

Users have already glimpsed a few of the redundancy features IBM and other vendors have built into their servers for failure. IBM's xSeries (formerly NetFinity) servers are equipped with a technology dubbed software rejuvenation that views the processes running on a server and restarts Windows NT and 2000 servers before they fail.

IBM xSeries servers and Dell PowerEdge 6400 and 6450 boxes are already outfitted with Chipkill technology, in which data is automatically redirected from failed memory chips to segments of memory that are not faulty. Perhaps the most recognized self-management features are those Compaq ships on its Proliant servers.

"Our servers can predict many failures and report them using a variety of means," says Terry Roedecker, senior network administrator at MidFirst Bank in Oklahoma City, Okla. "Although [self-managing technology] is still in its infancy, it has saved us more than once. We've had drives report as being ready to fail. By knowing that ahead of time and getting them replaced, we've averted possible downtime on the server."

An eye on capacity

Another IBM Eliza project is capacity-balancing technology that could be used by a company for its Web sites. For example, if servers in one site had too much traffic to handle, traffic could switch automatically to servers in another site. Or the servers in one site could be clustered, aware when another server in the cluster was overloaded or failing and take over the capacity of the failed server.

"Capacity is a problem we face every day," says Roedecker. "We have servers with more [capacity] than they'll ever need and others that never seem to have enough. Having the ability to allow the servers to automatically remove [capacity or bandwidth] from one device and add it to another would be a [boon]."

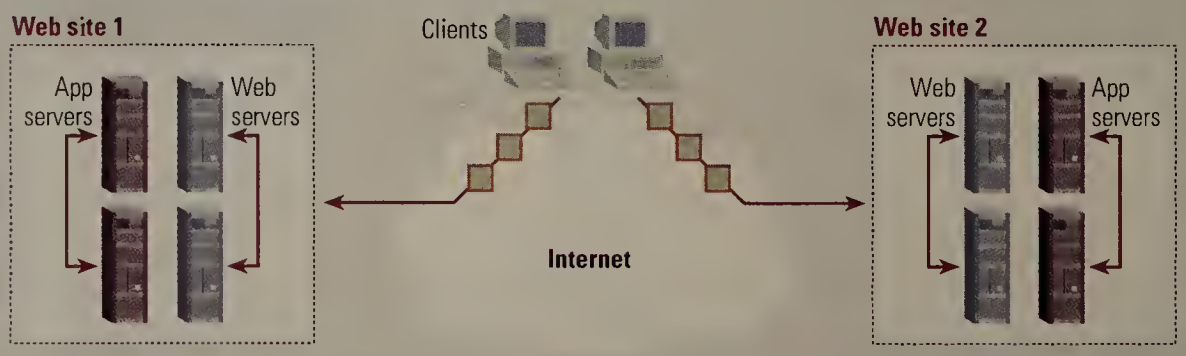
While capacity management will be a time-saver, Rocco Esposito, CTO of window-covering manufacturer Hunter Douglas in Upper Saddle River, N.Y., says his staff spends about four hours per day monitoring servers, 30 hours per month monitoring capacity and another 30 hours per month installing and configuring server software. With a self-managed server such as that from IBM, Esposito could eliminate most of this time and free his staff for more important tasks.

"This is an activity that is spread across the company," Nelson says. "There are pieces that are going to be in the research, software and servers group." ◪

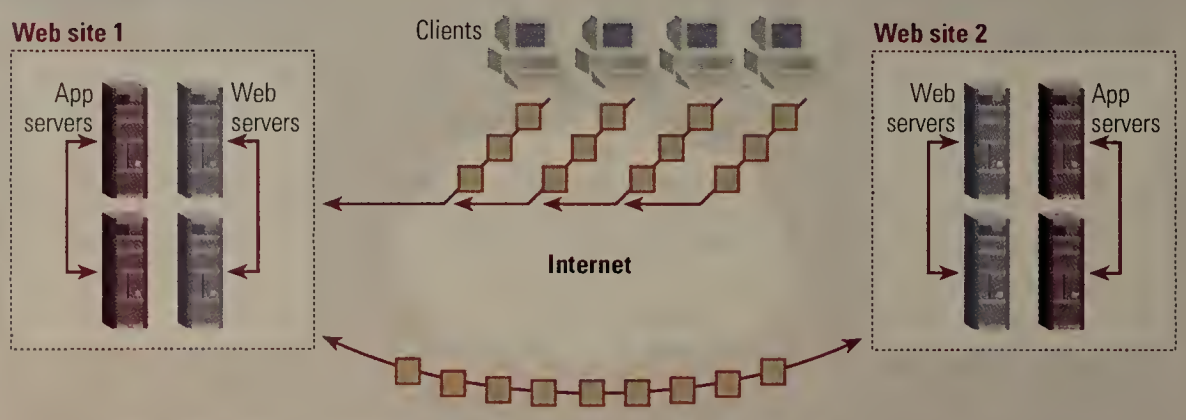
HOW IT WORKS

Bringing balance

IBM is working on capacity-balancing technology for its server family that will let Web site customers more effectively balance heavy traffic loads.



❶ **During low or normal traffic patterns, Web and application servers in sites 1 and 2 could load balance between boxes on-site.**



❷ **With intelligent capacity handling, if 'Net traffic suddenly spikes, servers in Web site 1 could automatically load balance with Web and application servers in Web site 2.**

The T3 access device that won't let idle bandwidth rest.

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ADTRAN's multiport T3 DSU/CSU gives you more options for T3 bandwidth utilization than competing T3 access units. The T3SU 300's standard 44.2 Mbps HSSI port is complemented by *three* additional expansion slots that allow you to transport data, voice or video (in any combination) over idle capacity. This product is the only T3 access device that allows you to eliminate an additional 12 incoming T1 circuits by combining voice and data onto excess unchannelized T3 bandwidth. With all this, plus automatic reconfiguration and SNMP/Telnet management, you'd think the T3SU 300 would be expensive. But it's not. It costs less than the competition.

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Tivoli to mend fences with customers

Planet Tivoli attendees to hear about renewed focus on user base, latest on IBM integration.

BY DENISE DUBIE

SAN FRANCISCO — When 1,500 Tivoli users gather this week for their annual conference, they will learn the latest about the company's ongoing product-integration efforts with parent IBM. They also will hear Tivoli executives profess a renewed commitment to the needs of existing customers.

Among the topics expected to be addressed:

- Tivoli's release of application software to manage IBM's WebSphere Application Server.
- New privacy management software called Tivoli SecureWay Privacy Manager designed to help banks and other organizations comply with regulations in the Financial Services Modernization Act.

"I want to be clear with all this talk of further integration that Tivoli will not become an IBM-only product company."

David Murphy, president, Tivoli

- A three-part initiative to better serve customers through products, partnerships and channel offerings.
- A roadmap for future product and services offerings.

"IBM and Tivoli working more closely together is definitely a good thing," says Diana Beecher, CIO at Travelers Insurance in Hartford, Conn. Travelers purchased Tivoli management software about five years ago, right before IBM acquired Tivoli. "IBM understands what we need philosophically and [it] offers a lot of support, but Tivoli has the comprehensive products we need."

While the upcoming changes are being billed as natural evolutions, Tivoli's financial situation sped up the process. The company, which accounted for about $2 billion of IBM's more than $21 billion 2001 first-quarter revenue, has seen revenue and earnings fall short for the past couple of years.

"Simply put, Tivoli hasn't been making its numbers," says Donna Scott, research director at Gartner.

The most recent IBM earnings report revealed declining revenue for Tivoli and IBM sibling Lotus, which reflects, according to IBM, ongoing transitions within both units. Although Tivoli earned its reputation for network management software, the company is now making a strong play in the security and storage markets. Meanwhile, Lotus is expanding into new growth areas such as knowledge management software.

'Lost its luster'

"Tivoli has lost its luster in the network management market. They have best-of-breed technology, but they have to make it easier to use," Scott says. "IBM can help Tivoli, but [Tivoli's] first priority has to be getting out there and satisfying existing customers."

All of this is not lost on Tivoli. President David Murphy acknowledges that the company focused its efforts too much on technologies that never saw the light of day, while possibly overlooking the more pressing concerns of customers.

IBM Software Chief Steve Mills refers to the Tivoli technologists as "maniacally focused" on solving abstract technology problems that users don't face in the real world.

With that in mind, Tivoli is targeting six areas for technology leadership: availability and performance management; storage management; security management; configuration and operations management; service delivery management; and "aggregated solutions." This involves Tivoli collecting technologies for customers to meet their specific needs. For example, a customer looking to implement an e-marketplace would need Tivoli's Web management and security products, and Tivoli would sell those as a package.

This week Tivoli will announce a link between its management software and IBM's WebSphere Application Server, but Murphy says the additional integration with IBM products in no way undermines his commitment to supporting multiple vendors.

"I want to be clear with all this talk of further integration that Tivoli will not become an IBM-only product company," he says. "The company made its way in the heterogeneous market and will continue to explore technologies not associated with IBM."

Hurwitz analyst Rich Ptak says the Tivoli/IBM plans should not concern customers.

"People always harp on 'you can't serve two masters,' but I really think that's a boogeyman, that they're trying to set up a threat that doesn't exist," Ptak says. "Tivoli has gone through some hard times, and it's certainly not the company it was, but I don't see any hardening of the arteries in Austin."

Ptak says Tivoli's SecureWay products are leading the security market, and Tivoli plans to announce this week a partnership with a Web security company that will strengthen its hold.

Details have yet to be disclosed, but Tivoli says its SecureWay Risk Manager will work with the partner's security appliance to manage risks. The company will also make public its deal with McData to sell a "LAN-free appliance" that is preconfigured and tested to quickly deploy storage systems for e-business networks.

But Gartner's Scott warns that until Tivoli can more fully satisfy existing customers, the company will not fully recover from its less-than-satisfactory performance the past few years.

"Tivoli doesn't have laurels to rest on anymore. It's not a given Tivoli will be No. 1 in the market," she says. "They have to be fierce in their strategy; they can't relax." ◪

News from Tivoli

Planet Tivoli attendees this week will hear the company talk about:

Security	A partnership and product integration with a yet-to-be-disclosed Web security company. Tivoli's SecureWay Risk Manager will work with its partner's security appliance to mitigate the threat of Web hacks and defacements.
Storage	Tivoli and McData introduce their "LAN-free appliance" that is preconfigured and tested to help customers quickly deploy storage systems.
The Web	Tivoli releases application software that will integrate with IBM's popular WebSphere Application Server.
Services	Tivoli will partner with a business-to-business service provider and enhance one of its product offerings to improve availability, performance and security.

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3Com outlines its latest reorganization

BY PHIL HOCHMUTH

SANTA CLARA — Customers and industry analysts are reacting cautiously to 3Com's latest restructuring plan.

3Com last week said it would restructure its enterprise business into two independent units to better serve customer needs and the company's financial interests. The move is 3Com's second recent reorganization, as it separated its CommWorks carrier business from the rest of the company in January.

3Com will start its new 3Com Business Connectivity Company on June 4, the start of its fiscal year. The unit will focus on connectivity products for desktop, mobile and server systems. The other company will be called the 3Com Business Networking Company and specialize in LAN switching, wireless infrastructure and IP PBX technology.

"3Com really needed to focus," says Tere' Bracco, an analyst with Current Analysis, adding that she sees the reorganization as encouraging because it will let the company streamline its two key businesses — network interface cards (NIC) and switches.

3Com has been facing financial troubles for months. In March, the company announced a pro forma net loss of $122.8 million for its third quarter. About 1,400 employees have been laid off.

The business units will be smaller and more agile, 3Com says, which will let them pursue more aggressive strategies and deliver products more quickly.

Users say they're unclear as to what the 3Com moves mean for them. Chris Stewart, an IT technician with Rockwell Transportation in Bucks County, Pa., uses 3Com NICs and switches, and says that if dealing with two separate entities becomes too confusing, it could affect how he does future business with the networking firm.

In light of current market troubles, 3Com and other struggling network firms may focus more on survival and damage control than customer needs, says Frank Dzubeck, president of consulting firm Communications Network Architects. As a result, products could be dropped, and waiting times for support and parts shipments could lengthen.

IDG News Service contributed to this story.

3Com's restructuring plan

Here's where some familiar product lines will fall:

3Com Business Connectivity Company	3Com Business Networking Company
• Desktop PC and server network interface cards (NIC).	• SuperStack and modular switches.
• PCMCIA adapters for laptops.	• SuperStack III Web appliances.
• Broadband access modems.	• NBX IP voice products.
• Dynamic access NIC management software.	• Transcend net management software.

Adtran attacks VPN market

Initial product is aimed at branch offices.

BY TIM GREENE

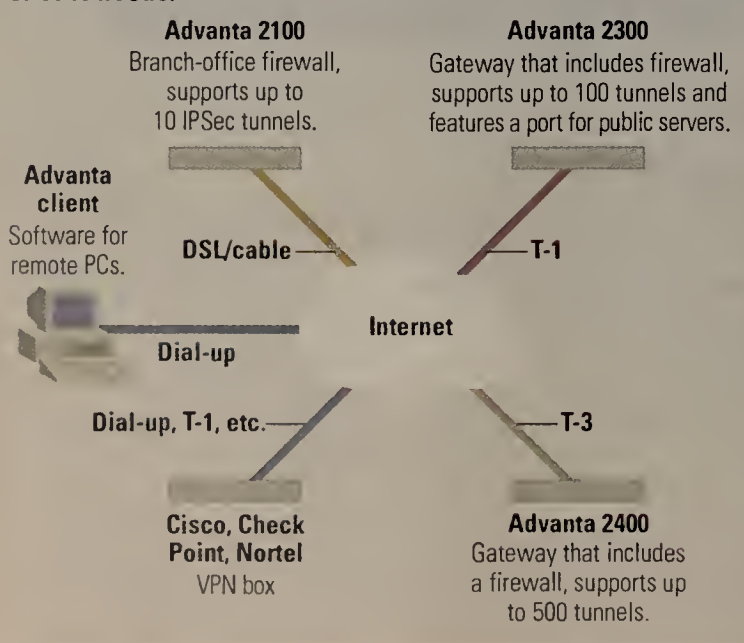
LAS VEGAS — Known best for its telecom gear, Adtran next week will branch into VPNs.

Adtran will use NetWorld+ Interop to debut its Advanta 2100 branch-office firewall/VPN appliance, the first in a line of new VPN products. Later this year, the company will roll out two larger VPN gateways, plus a client for remote access.

See **Adtran**, page 75

VPN variety

Adtran's Advanta hardware and software will address a host of VPN needs.



Akamai, Oracle team to personalize Web

BY JENNIFER MEARS

CAMBRIDGE, MASS. — Content delivery service provider Akamai and software maker Oracle have teamed to create a proposed standard language aimed at making it easier to deliver personalized, dynamic content over the 'Net.

The companies this week will announce Edge Side Includes (ESI), a markup language that can be inserted into applications to identify fragments of Web pages that can then be assembled and updated at the network's edge.

The idea is to more quickly deliver up-to-date content. The companies say they are talking with other vendors in the application server and content delivery industry, but no one has yet committed to joining them in adopting ESI.

Thorsten Ganz, director of product marketing at Akamai, says the companies plan to submit ESI to a standards body by the end of May, but wouldn't say which one. He says ESI specifications will be available on the Oracle and Akamai Web sites in the meantime.

Akamai, whose business is speeding content from its global network of more than 10,000 geographically distributed cache servers, and Oracle, which includes caching technology in its Oracle 9i application server, have been focused on accelerating the delivery of dynamic Web sites, observers say.

"They got together and recognized the interesting value of making the two things work together," says Peter Christy, research director at Jupiter Research. Because ESI is based on HTML-like tags, Christy says he wouldn't be surprised to see Oracle and Akamai be open to modifications and succeed in creating an open standard. "It's an interesting step in allowing more and more processing to operate in shared resources out at the edge of the network," he says.

Neal Goldman, director of Internet computing strategies at The Yankee Group, says ESI will improve the Akamai network and Oracle's 9i application server because it will give both more reach. An enterprise customer could cache its content on the Oracle server, for example, and then distribute it to Akamai's global network without retagging or changing a line of code, he says. The reverse is true for Akamai customers who decide they want to use the Oracle 9i application server Web cache in front of their origin servers.

What Oracle and Akamai need to do, Goldman says, is get tool vendors to create custom tags for ESI. Already, Oracle is providing support for ESI for Java, offering a set of custom JSP tag libraries that can be used to generate ESI code using Java Server Page syntax.

Navarrow Wright, CTO at BET.com, a portal geared for the African-American community, has used Akamai to deliver his site's static content since its launch a little more than a year ago.

Today, BET.com is in the process of implementing Akamai's EdgeSuite, which delivers dynamic content from the edge of the network. The prospect of an open standard is encouraging to Wright.

"Right now, as a new EdgeSuite customer, we have to implement separate sets of tags that communicate with EdgeSuite for it to work," he says. "For example, we run Vignette storage server. If they had come out with a solution that integrated it more tightly with Vignette storage server there wouldn't be major changes we'd have to make... . So if there was a standard and all of the major software players adhered to that standard, it would be an easier migration."

ESI will be available in EdgeSuite and the Oracle 9i application server some time in May.

In the future, Ganz says, Oracle and Akamai plan to incorporate other features into ESI, such as security standards so developers can implement security and access controls around certain page fragments delivered from the network's edge.

Akamai: www.akamai.com; Oracle: www.oracle.com

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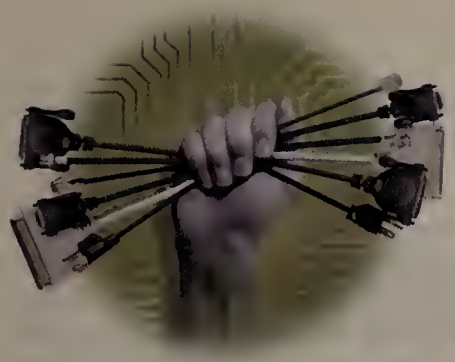

Infrastructure

TCP/IP, LAN/WAN Switches, Routers, Hubs, Access Devices, Clients, Servers, Operating Systems, VPNs, Networked Storage

Briefs

Sun last week released an update to its **Solaris 8** operating system, adding several tools designed to simplify the management of large numbers of servers. One of the new features is **Web Start Flash** technology for transferring one server configuration to other machines. Administrators can replicate a reference server configuration onto multiple servers in less time than is now required, Sun says. The base configuration can include not only Solaris but also an application stack and system configuration. The Web Start Flash tools let users roll needed updates or changes across a number of servers into one action. The new version of Solaris also comes with tools for working with mobile IP. Users can download the Solaris software free for eight or fewer CPUs.

Sun: www.sun.com

Unisys and **Nortel Networks** announced last week they have developed a VPN offering called **Secure VPN**, targeted at financial institutions, governments and businesses that want to conduct secure business over the Internet. Secure VPN will combine Nortel's line of **Contivity** VPN switches with Unisys' consulting services business. Contivity switches provide the standard array of VPN features, including IP Security, and firewall and network address translation security. The Contivity client supports Windows 95, 98, 2000 and NT 4.0 or higher. Firms wanting to set up a VPN through the Unisys-Nortel partnership can contact Unisys. The service, available now, varies in price depending on the configuration, but can run from $50,000 to millions of dollars, Unisys says.

Unisys: www.unisys.com; Nortel: www.nortelnetworks.com

Enterasys ups high-speed wireless ante

BY JOHN COX

NETWORLD + INTEROP

Enterasys doesn't yet have a high-speed wireless LAN product. But it has something almost as good: a way to shift your firm from an 11M bit/sec wireless LAN to one almost five times faster.

Enterasys will announce a wireless LAN access point, the RoamAbout R2, which will let customers change an IEEE 802.11b wireless network into an 802.11a net, with a data rate of up to 54M bit/sec, by swapping a radio card. The 11a radios, which run in the 5-GHz band, compared with today's 2.4-GHz radios, are expected to appear in interface cards and access points from Enterasys and several other LAN vendors starting late this year.

Competitors such as 3Com, Cisco, Agere/Lucent and Symbol Technologies sell 802.11b 11M bit/sec wireless LANs now; all have announced plans, or are expected to do so, for 802.11a products.

An access point contains a radio transmitter that exchanges signals with other access points and with client devices, such as PCs or laptops, that have a corresponding wireless interface card.

Enterasys' R2 is designed as a foundation box that will eventually support an array of wireless products. Initially, net managers can buy the R2, then buy the 802.11b interface card and create an 11M bit/sec wireless LAN. Late this year, when the more powerful 11a products ship, net managers will have two options. One is to replace the slower radio card with the faster one.

The second is to pay for a daughtercard, slot it into the R2's PC Card slot, and run a 2.4-GHz and a 5-GHz radio. The two can run so close together because they operate in different bands and are based on different technologies. The slower radio can handle routine LAN traffic while the faster one handles such things as video or large image files.

Enterasys RoamAbout R2 high-speed wireless LAN access point can support 11M- and 54M-bit/sec nets simultaneously.

The R2 can also function as a wireless bridge linked to antennae on building roofs to create line-of-sight connections that can network the wired or wireless LANs in one building with those in another.

Enterasys, a unit of Cabletron in Rochester, N.H., is billing the RoamAbout R2 as "802.11a-ready" because the box is designed for the higher-speed 11b interface cards.

"They're not really ready yet, because no one has any client cards [for 11a LANs]," says Jason Smolek, an IDC analyst. But Smolek likes the

See **Enterasys**, page 19

Gigabit Ethernet for the masses

BY PHIL HOCHMUTH

Falling prices to spur adoption

The installed base for Gigabit Ethernet NICs will jump from just under 800,000 this year to 11.3 million by 2004.

SOURCE: IDC

It could be said that the Gigabit Ethernet landscape has become like the market for Razor Scooters — those chrome, foot-propelled toys that every kid seems to own. While once expensive and available only from a few vendors, these days it seems everyone's making them, and they're only getting cheaper.

A recent slew of cheap Gigabit Ethernet product announcements from many vendors backs up this notion, with several Gigabit switches and network interface cards (NIC), and even laptop adapters, available now or in the near future. These announcements also signal the mainstreaming of Gigabit Ethernet, according to one observer.

Gigabit Ethernet is becoming a network commodity, says Lauri Vickers, an analyst with Cahners In-Stat. Just as Fast Ethernet and Layer 3 switching quickly went from bleeding-edge to run-of-the-mill LAN technologies, so goes Gigabit Ethernet.

Asanté this week will announce a 12-port Gigabit Ethernet switch for connecting servers to a backbone or high-end users to a network. The company's IntraCore 65120 features 10 10/100/1000M bit/sec ports (fiber or copper) plus two Gigabit Interface Connector (GBIC) interfaces for uplinks. The key to the Asanté offering is the price, around $400 per Gigabit Ethernet port. (Market research firm IDC estimates the average per-port price for Gigabit Ethernet ports was about $1,000 last year). Also, the Asanté switch has a backplane of 38.4G bits/sec, which could help avoid congestion when traffic is high.

Also getting into the act was Netgear, which released an eight-port Gigabit box and a copper-based Gigabit NIC. Netgear's GS508T is an eight-port, copper-based Gigabit box that is priced at $215 per port. However, the device has no GBIC uplink ports and has a backplane of 16G bit/sec. Each port on the box can autosense 10/100/1000M bit/sec connections.

Netgear's Gigabit NIC is also copper-based, and can support 64-bit and 32-bit PCI buses on Intel-based servers. At $180, the adapter costs less than half the average industry price for a Gigabit Ethernet NIC in 2000, which IDC estimates to be about $460. Not to be outdone, consumer and small office/home office networking vendor D-Link last week also released a copper-based Gigabit Ethernet adapter, priced at $129.

And finally, on the 1000M bit/sec NIC front, OEM component maker Marvell announced last week that it is shipping Gigabit Ethernet transceiver components for laptop PC card adapters and integrated LAN-on-motherboard adapters for laptops. The company says its Alaska Ultra PHY transceiver can autosense 10M to 1000M bit/sec links and could be used on Mini PCI or Card Bus Type 2 adapters. ◪

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Auspex rearms for network-attached storage battle

BY DENI CONNOR

SANTA CLARA — Auspex has a chance to revive its business with the launch of a scalable network-attached storage device that lets enterprise network managers add storage to their Ethernet networks as they grow.

The company, which introduced the first NAS system to the market in 1988, will unveil its NS3000 Series NAS in May. The NS3000 scales from 1/2 terabyte to more than 72 terabytes of data capacity and supports the Unix Network File System (NFS) and Microsoft Common Internet File System (CIFS), letting customers more easily expand their Unix and Windows NT/2000 networks. The NS3000 will include Auspex' NetOS 3.01 operating system and software called TurboCopy that lets one machine copy its storage to another local or remote machine without affecting network performance.

Auspex was the market leader in NAS, market research firm IDC says, until 1998 when Network Appliance bumped the company out of the No. 1 spot and showed a 40% market share by revenue; Auspex fell to 20% of the market. By 2000, Auspex's lead had eroded to less than 2% as a result of "mismanagement, a lack of focus and bad marketing," says Robert Iacono, vice president of marketing for Auspex.

"Auspex' technology was never faulted by anyone," says Zachary Shess, an analyst with Aberdeen Group. "It has been in their failure to market and distribute their products well. If the company can execute on marketing and sales and have a reasonably priced product, they have a chance of winning back some market share because of their technical heritage."

Auspex wants to change all that with the NS3000, which has been expanded to work on NFS, CIFS, HTTP and Linux environments. The box will compete with NAS systems from Network Appliance and EMC. It attaches to the network with a Gigabit Ethernet adapter and will process more than 18,000 I/O operations per second compared with 15,700 for the Network Appliance NetApp 840 and 12,500 for EMC in SPECsfs benchmark testing, the firm says. SPEC sfs was developed by an industry team of developers who wanted a better means of measuring Unix NFS server performance.

Mark Zimmer, of the Mineral Management Service for the U.S. Department of the Interior in New Orleans, favors Auspex' offering.

"Most of the storage we have is multiprotocol CIFS- and NFS-seismic data, which we share among Unix and Windows NT clients," he says. "We have close to 12 terabytes of storage online and are going to purchase another 1 terabyte next month. Next year we will buy another 5 terabytes."

"We are averaging about 64M byte/sec among 10 simultaneous clients," Zimmer says. "The performance is compatible with what we see from Network Appliance and EMC boxes. Performance is very important in looking at seismic data. Because most clients are pulling in 200G-byte files, you need a server that can deliver that data very quickly to multiple clients."

The NS3000 is available as a single node with an upper range of 6 terabytes in May. Pricing is not available.

Auspex: www.auspex.com

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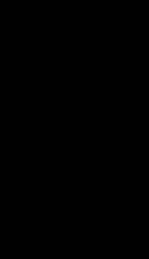

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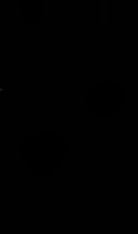

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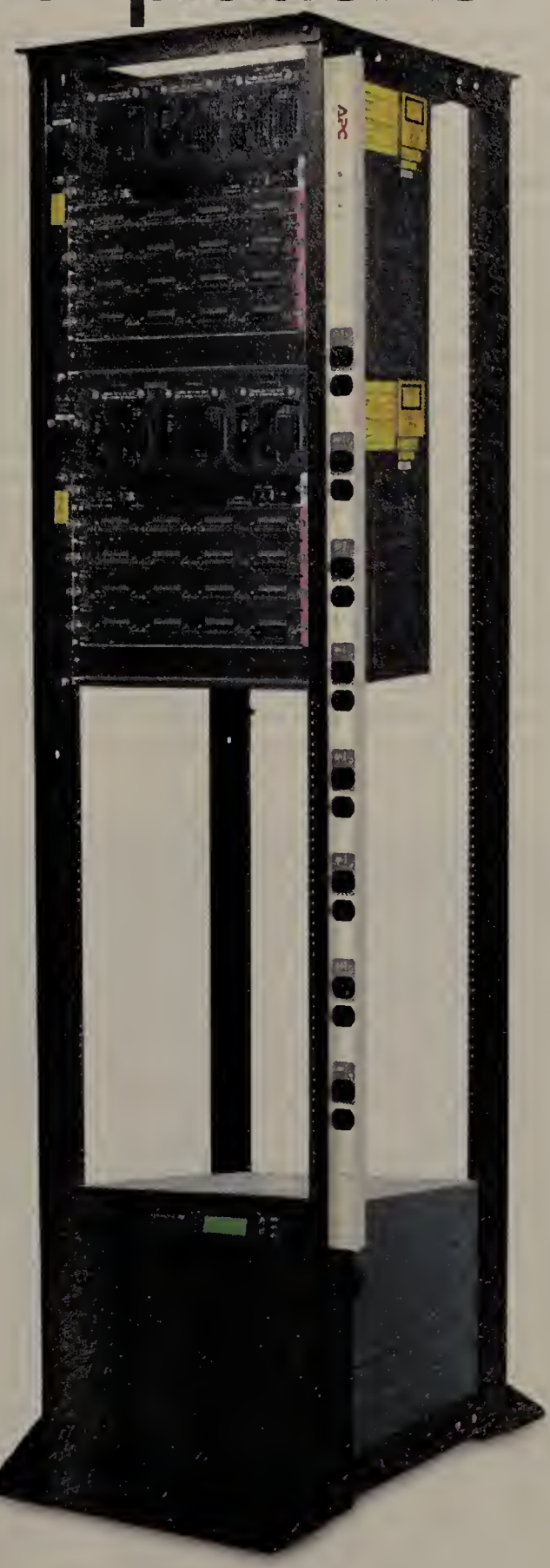

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APC monitors all UPS parameters, tailored to your desired response. Regular UPS parameter and event reports are issued with event frequency, duration, and resolution, offering immediate enhancements to your investment.

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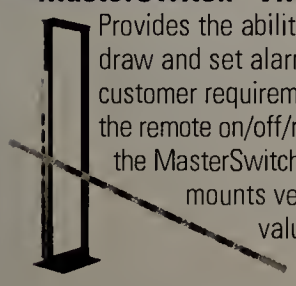

Provides the ability to monitor the current draw and set alarm thresholds, based on customer requirements, while still providing the remote on/off/reboot capabilities found in the MasterSwitch series. In addition, it mounts vertically, requiring zero U of valuable rack space.

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- **ProtectNet** rack-mounted data-line protection.
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Cylink boosts remote access options

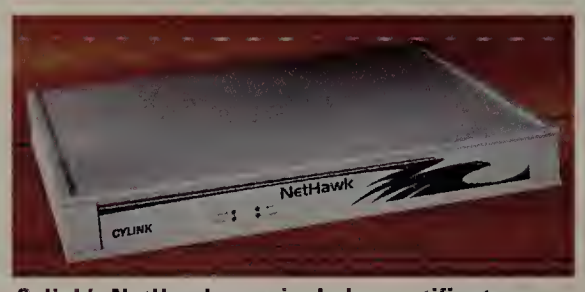
Company's NetHawk VPN server adds site-to-site dial-up; security features.

BY TIM GREENE

SANTA CLARA — With new security features and remote access options, Cylink is making it possible for companies to give remote laptop users safe access to VPNs even when they are traveling.

Cylink is adding a PC client to its NetHawk VPN equipment — to be named NetHawk 3.0 — enabling for the first time remote-access VPN connections to the NetHawk VPN gateway appliance. The Cylink client is also known as SafeNet, client software that is used by other VPN hardware makers such as 3Com, Nokia and Cisco.

In the past, Cylink users had to place one of the company's NetHawk appliances at each site that was going to connect to the VPN. Connections had to be made between NetHawk gateways. With the client installed on a Windows PC or laptop, users can dial their ISPs and establish a secure IP Security (IPSec) tunnel over the Internet to a NetHawk device at a corporate site.



Cylink's NetHawk now includes certificate authority and policy-setting features.

Cylink is late to this game because competitors such as Cisco and Enterasys already have dial-up and site-to-site VPN capabilities.

Still, the client adds flexibility to an already flexible networking option, says Paul Olin, VPN project manager at Raytheon in Sudbury, Mass. He is evaluating the use of NetHawks to quickly link project teams at different Raytheon sites. The client would let team members work from home or the office with the same security and access to the same resources, he says. Also, a team administrator could use the client to access the NetHawk tunnel server remotely to add and delete users or change policies, Olin says.

In addition to the client, Cylink is adding new features to the NetHawk VPN gateway. This includes its own certificate authority to distribute digital certificates to VPN devices and its own internal Lightweight Directory Access Protocol server to set policies for VPN users.

The gear also copies the type-of-service (TOS) bits that indicate what service quality a packet should receive to the IPSec header. Without this capability, the TOS bit would be encapsulated, and routers could not read the bit to enforce service quality.

The NetHawk now also supports perfect-forward secrecy, which issues separate encyrption keys for each time Triple-DES traffic is encrypted. That way if one key is broken, the others aren't vulnerable.

The client and new NetHawk capabilities will be available May 5. Customers get unlimited clients for free with the purchase of a NetHawk.

Customers who already own a NetHawk can upgrade their software for a fee, which has not been set, as part of their maintenance contract. The Cylink hardware needed to operate the VPN ranges in price from $3,000 to $7,500.

Cylink: www.cylink.com

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Enterasys,
continued from page 15

thinking embodied in the R2, which will let companies start with 11b and move selectively to 11a without scrapping the access points.

"The other [LAN] companies aren't thinking in terms of a migration to save customers money," Smolek says. "They sell their products at a premium: It will force enterprises to rip out 11b LANs and replace them with 11a."

But the migration is unlikely to be as simple as Enterasys executives suggest. First, higher-frequency radios have a shorter range than lower-frequency radios. Users may have to add 5-GHz access points to get the coverage they need. Secondly, for both radios, the wireless bandwidth is shared by the clients linking to given access points. Depending on the application mix and the client population shifts, net managers may have to move and add access points.

Smolek notes that 5-GHz radios are "power hogs," an especially critical issue for mobile laptop clients. Enterasys and other vendors should be planning power management features to help with this, he says.

With the faster 11a interfaces later this year, R2 also will support a battery of advanced services, according to Peter Beardmore, general manager for Enterasys' wireless products. These include:

- Wireless bandwidth provisioning, to allocate specified bandwidth to a given users or group of users.
- Quality-of-service features to give some types of traffic priority.
- Integrated Group Management Protocol support to limit such things as a video stream to specific users, rather than broadcasting it to all on the subnet.
- Advanced encryption to block hacking.

RoamAbout R2 will be launched at the NetWorld+Interop show in Las Vegas. The list price is $1,349, with one slot; the current 802.11b radio card is $149. The daughtercard, creating the second slot, is $149. Beardmore declines to say what pricing might be for the 5-GHz 802.11a radio interfaces when they're available.

Enterasys: www.enterasys.com

Radguard dies a quiet death

BY TIM GREENE

TEL AVIV, ISRAEL — Despite an attempted comeback after firing everyone in March, the founders of VPN vendor Radguard say they will liquidate the 7-year-old company, according to reports.

The firm tried last week to refinance and rehire 30 to 50 of its employees, but could not entice them back (www.nwfusion.com, DocFinder: 4037).

Yehuda Zisapel, one of two brothers who founded the company, took over as CEO to make the resuscitation attempt, but would not talk about its demise.

Radguard made the cIPro line of VPN equipment, which included hardware for branch offices and corporate headquarters fed by large dedicated links, and a certificate authority and PC client for remote-access VPN use. The gear twice ranked well among VPN equipment tested by *Network World*, winning a blue ribbon in 1999.

"Their strengths were in their enterprise management and in their very serious commitment to security," says Joel Snyder, who ran the tests for *Network World*. "They really refused to compromise on total system security, even going too far sometimes, to make things easier for end users. That ended up costing them some market share, but it also got them a lot of respect."

That a company specializing in VPNs is stumbling could indicate that the major vendors in the area have been established and that times will be tough for others, analysts say. At the same time, demand for VPNs seems to be growing, says Bob Lonadier, an analyst with Hurwitz Group. "We've been looking for a slowdown or easing of demand for firewalls, and we don't see it. We don't see it for VPNs as well, but that doesn't mean VPN companies won't fail."

"Are there too many vendors? Yes. The issue is if you are a smaller player, this is not a great time to be in the VPN market," says James Slaby, an analyst with Giga Information Group. ◪

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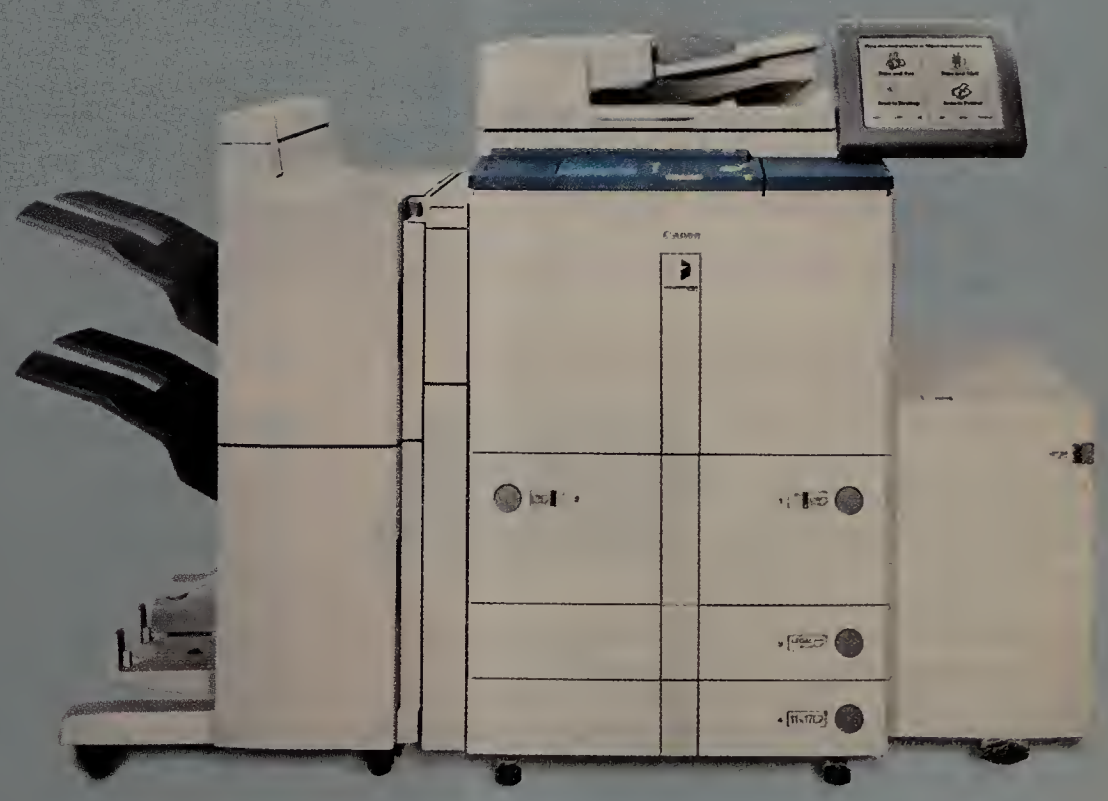

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Tolly on Technology . Kevin Tolly

BENCHMARKS TAKE ON A LIFE OF THEIR OWN

It's not difficult to understand the allure that "benchmarks" hold for net managers. Product selection is often a difficult, mind-numbing task. Comparing numbers helps deal with information overload and lends an air of objectivity to what often becomes a fairly subjective decision. But what happens when benchmarks take on lives of their own?

So ingrained become these benchmarks that vendors and end users are often extremely reluctant to give them up — even when the benchmark data is no longer relevant and may even be misleading.

Implicit in supporting the benefits of benchmark data is the understanding that such data provides valid, empirical data rather than just numbers that can't be shown to mean much of anything.

PERFORM3 is a classic example. Everything everyone I've ever met knows about it they heard from somebody else. Officially, it doesn't exist, yet it was used as *the* benchmark for network interface card (NIC) performance for years.

Apparently developed within Novell in the late 1980s to exercise server disk performance, someone figured out that, in the process, it also measured how quickly a NIC could process data and, voilá, a benchmark was born. It had flaws (it didn't isolate the NIC and actual file I/O could impact results) but it was better than nothing.

Now Novell quite rightly disavows any knowledge of it. A vendor quality assurance engineer handed my copy to me in the early 1990s.

PERFORM3 was a DOS-based program that should have been retired when 32-bit Windows clients arrived — but it wasn't. When we told our vendor customers that it was pointless to run DOS-based tests on Windows NT they agreed — but asked us to run them anyway. Their customers, they said, were comfortable with the benchmark.

Similarly, switch latency tests are often examples of empirically accurate but virtually meaningless numbers. Yes, it can be proven that the latency of a switch is so-and-so-many microseconds faster than the competitor. But, because both times are minuscule, what should that mean to the buyer?

The vendors press on the point that their product has demonstrably lower latency (i.e. better) than the competition. When pressed for a rationale for how that can be extrapolated into some specific benefit, they lapse into "high-level" discussions about "lower latency means better response time." Maybe.

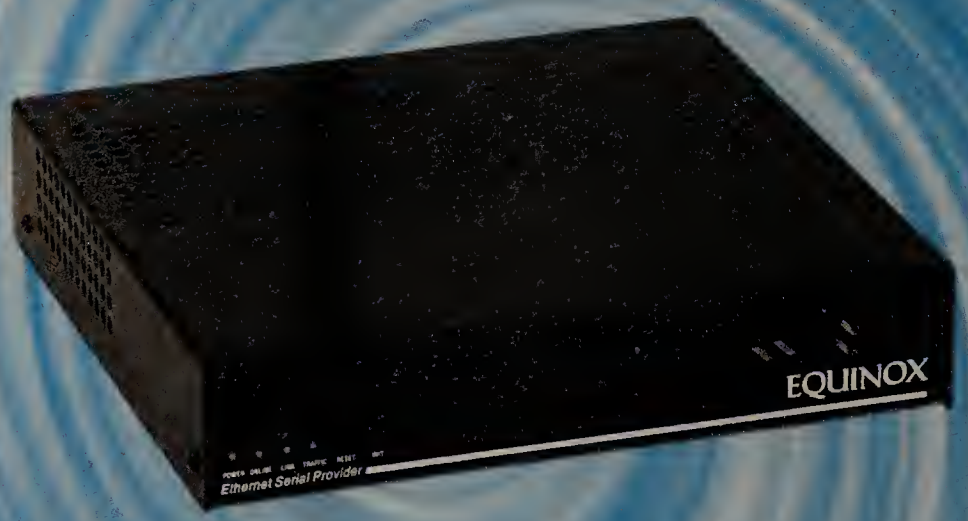
I reported my most recent tangle with benchmark madness in a recent column. We explained to a testing customer that the Ziff-Davis "Performance/Efficiency" benchmark was an inappropriate means of comparison in this day of multispeed, variable duplex modes.

We proposed to update this formula to make it meaningful for today and the future. The reply: "I understand your perspective but the industry is more or less used to the way it has been done, so I would like to keep it that way."

Bottom line: Look hard before you take that leap of faith. Look behind the numbers to understand what they really do — or don't — mean.

Tolly is chairman and CEO of Tolly Research and founder, president and CEO of The Tolly Group. He can be reached at ktolly@tolly.com.

If you could foresee the future, you would have ESP.



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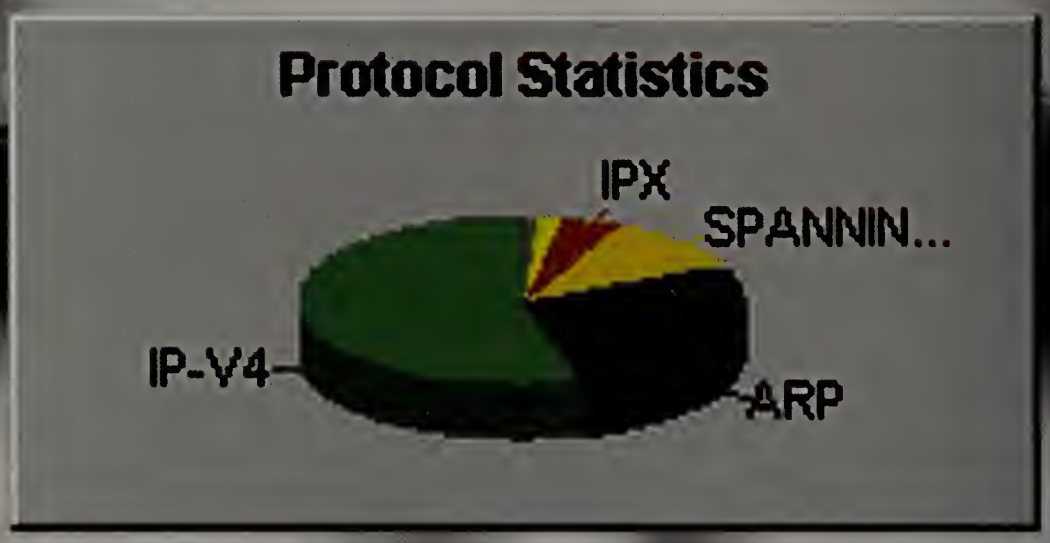
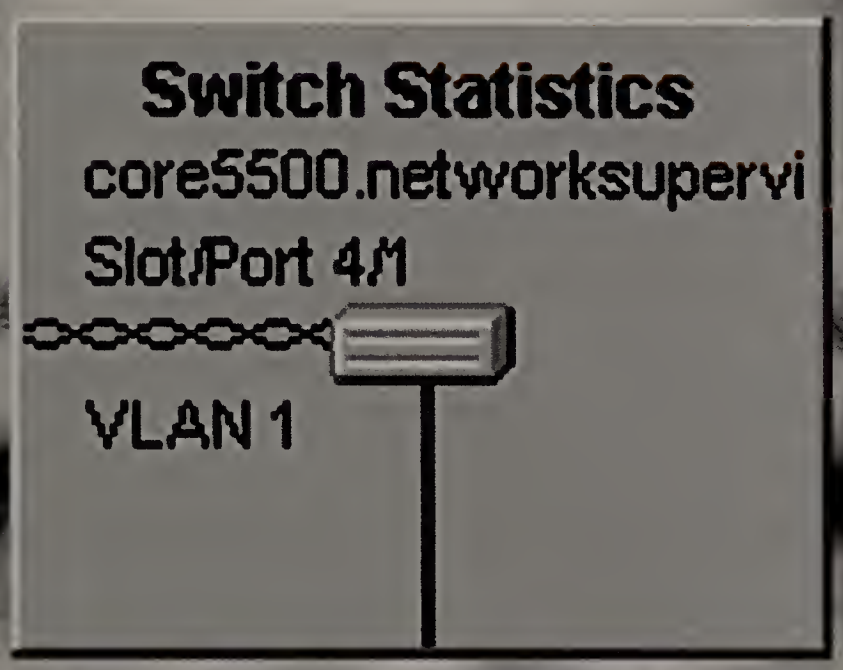
What's your vision of the Network Analyzer of the future?

It would need to capture packets
like my Sniffer.



We've done it.

It would have to integrate RMON,
network discovery, and packet analysis.



You got it.

It would have to integrate with
the tools I have today.

Device Discovery

6 Key Devices	010.196.136.007 : rsm-a.networksupervision.com
6 Routers	010.196.136.008 : rsm-g.networksupervision.com
8 Switches	010.196.136.015 : core5500.networksupervision.com
12 Servers	010.196.136.030 : appsvr4.networksupervision.com
228 All Devices	010.196.136.101 : optiview.networksupervision.com

In seconds flat.

I want to see answers,
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Ask and you
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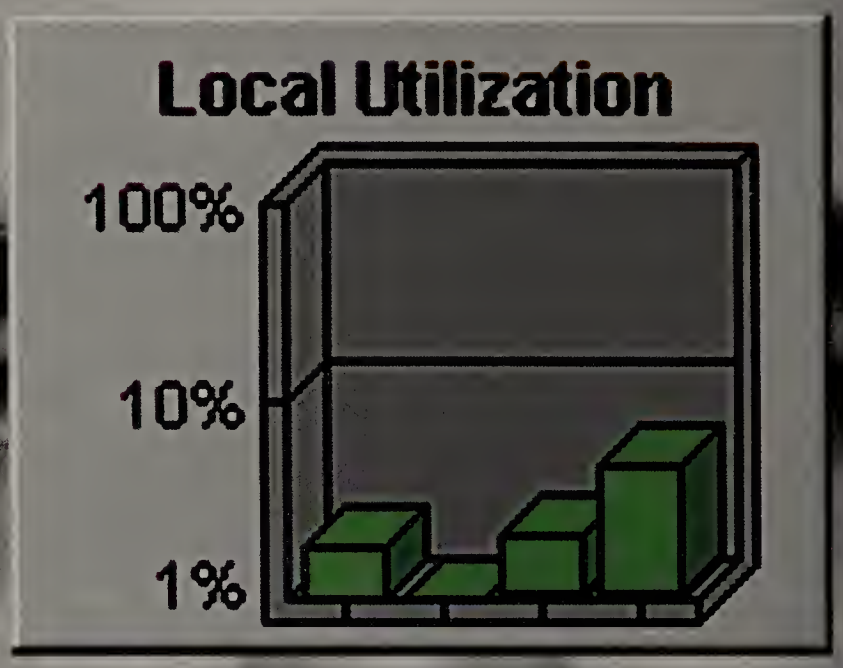
Web remote control is a must.



No problem.

FLUKE networks™

OptiView is already producing great reviews

"Fluke Networks' new OptiView Integrated Network Analyzer should be considered a standard tool for senior network designers and trouble shooters. We were impressed with OptiView's ability to quickly display potential network problems, as well as the ease with which we could navigate scads of data."
Cameron Sturdevant, *eWEEK*

"Whenever the OptiView is powered up and connected to a LAN, the processor board is watching and logging every packet, gathering statistics and probing for errors at full-line rate. The data may then be analyzed by Java-based software running on the tablet.

One of the more interesting functions is that the OptiView can capture packet data—both well-formed and malformed packets—that a notebook-based protocol analyzer may not be able to receive because its NIC firmware might reject the packets. The device can be told to capture all data, data going to or from specific addresses or only certain conversations."
Alan Zeichick, *Internet Week*

"What differentiates [OptiView] from ... single-function network analyzer products are features such as seven-layer protocol analysis, active device discovery, SMNP device analysis, remote monitoring (RMON2) traffic analysis and physical layer testing integrated in a single device."
Denise Dubie, *Network World*

"With its outstanding network monitoring and interface, the OptiView is the best piece of equipment for sniffing out and reporting smoldering problems before they burst into flame. The remarkable part is that this comprehensive (and comprehensible) system is smaller than a lunch box. The OptiView combines a powerful and diverse network monitoring and testing module with a completely integrated Windows-based PC in a portable case."
Frank Derfler, *PC Magazine*

2000
-WINNER-
PC Magazine Award
for Technical Excellence

INFRASTRUCTURE
OptiView Integrated Network Analyzer
Fluke Networks

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NETWORK SUPERVISION

Briefs

Cable & Wireless is laying off more than 4,000 employees this year in a cost-cutting maneuver. In addition, those who are spared pink slips can forget about getting annual raises. Cable & Wireless is eliminating annual salary reviews that typically take place in July, the company said in a memo to employees.

The memo states "the company must overcome some serious short-term issues. As well as the need . . . to release over 4,000 members of the workforce, we have come to the decision that it is not appropriate to conduct a pay review this July."

Qwest Communications continues to expand the service area for its business-class DSL service, adding the Indianapolis and Cleveland metropolitan areas last week.

Qwest's business service, known as **Qwest Integrated Business Solutions**, offers customers speeds ranging from 256K bit/sec to 1M bit/sec.

Other services Qwest will package with the DSL include Web site design and hosting, LAN integration and long-distance voice. By year-end, Qwest plans to have its business DSL service available in 25 metropolitan areas.

Qwest: www.qwest.com

Interliant, an application service provider and Web hosting company, last week agreed to a five-year deal with **Terra B2B**, a division of Terra Lycos in Mexico, to provide that company with branded Web hosting services that Terra B2B will resell. Those services will be aimed at small to midsize companies in Mexico and other Latin American markets.

Interliant: www.interliant.com

Best Buy buys into AT&T's INCS

Retail chain will deploy Integrated Network Connection Service across more than 400 stores.

BY DENISE PAPPALARDO

Constructing a communications network that links 419 home-electronics stores in 41 states is no easy chore, but Best Buy says it has found a way to build that network and save money to boot.

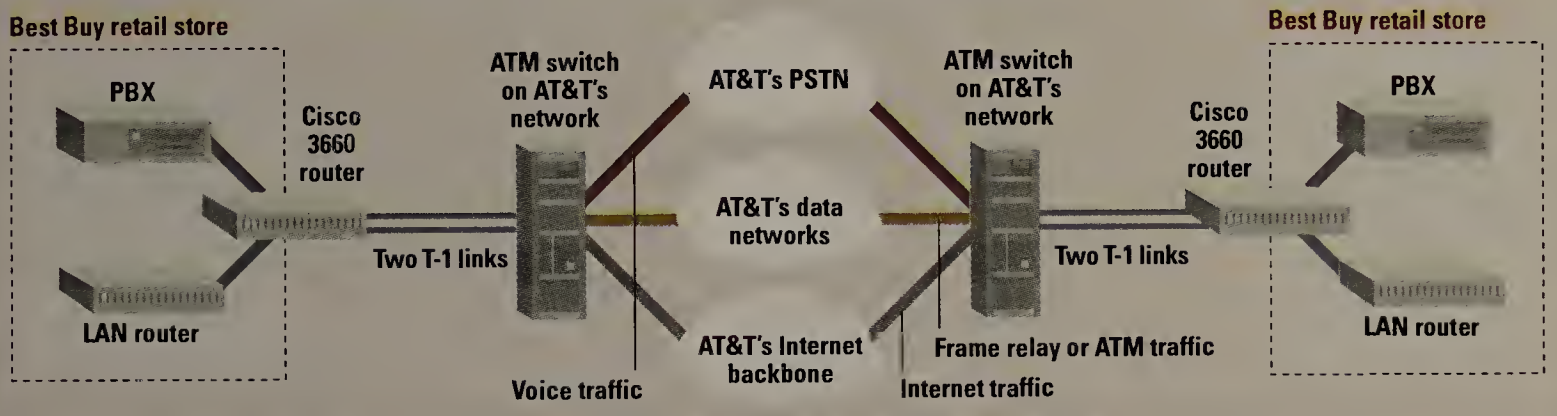
Best Buy is deploying AT&T's Integrated Network Connection Service (INCS) that will combine the national chain's voice, video and data traffic over a single network. The company expects it will save up to 25% annually compared with what it spends now to support those stores using dedicated private lines.

"It's a cost-attractive solution for us. We call it an EVA: economical value-add," says Dave Kaercher, Best Buy's director of technology design and build, or "the

See **Best Buy**, page 22

Best Buy's integrated connectivity

Best Buy is connecting 417 retail electronics stores to AT&T's Integrated Network Connects Service (INCS). The service lets users send voice, video and data traffic over one to eight dedicated T-1 connections that act as one logical link. Best Buy is using two T-1s at all of its sites. AT&T manages the network and all customer premise equipment.



Nasdaq warns Covad of possible delisting

Struggling DSL provider will file tardy 10-K disclosure the week of May 7.

BY MICHAEL MARTIN

SANTA CLARA — Troubled DSL provider Covad Communications announced last week that it has received a notice of delisting from Nasdaq.

The stock exchange issued the notice because Covad has been tardy in filing its 10-K form for the period ending Dec. 31, 2000. Most publicly traded companies must file a 10-K form with the Securities and Exchange Commission annually. The form provides a detailed overview of a company's business and financial health.

Covad officials say the company will file its 10-K the week of May 7. They say the delay in filing is due to Covad's rapid growth over the past year and the financial difficulties experienced by some of Covad's ISP reseller partners.

Problems collecting revenue from struggling ISPs forced the company to restate its third-quarter 2000 results and lead to the resignation of former CEO Robert Knowling. In the past few months Covad has cracked down on ISPs that were behind in their payments, cutting off service to some and getting repayment commitments from others.

Covad officials say the 10-K release on May 7 should prevent the company's stock from being delisted.

www.nwfusion.com

DSL DISASTERS

Get all the background on other DSL burnouts and see which other networking companies are engaged in large-scale layoffs and cutbacks.

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It's no secret that Covad has felt the same pain as its DSL wholesaler rivals Rhythms NetConnections, which is reviewing its business model, and NorthPoint Communications, which recently went out of business.

"It's been clear for some time that the wholesale model is in trouble," says Matthew Davis, an analyst with research firm The Yankee Group.

Covad has made some efforts to retool its business by launching a direct sales arm that sells Covad DSL directly to customers. But, Davis notes, Covad has hundreds of thousands of wholesale customers, so changing the business model entirely would be difficult.

Covad officials say the firm has enough cash to continue operating into next year.

Davis says it's tough to tell exactly how the company is doing financially.

"I'm not sure they'll be able to turn up customers quickly enough to offset the massive debt they're carrying," he says.

Best Buy,
continued from page 21

bits and bytes guy," as he calls himself.

Because the service is fully managed by AT&T, Best Buy doesn't have to make investments in its network operation center for additional monitoring and maintenance. AT&T also provides the hardware, a Cisco 3660 Multiservice Platform, which it also manages.

> ***"The single-box approach eliminates a huge capital investment, which directly reflects on my operational budget."***
>
> Dave Kaercher, Director of technology design and build, Best Buy

"The single-box approach eliminates a huge capital investment, which directly reflects on my operational budget," he says.

What Kaercher may like best about the service is that he sees minimal upgrades in the next three to five years.

Best Buy was already an AT&T customer when it signed a three-year, multimillion-dollar contract with the carrier to deploy and manage this new WAN. INCS lets customers migrate voice and data traffic onto a single pipe, eliminating the need for multiple connections that are dedicated to specific services such as voice, frame relay or Internet access.

That is how Best Buy was supporting its stores before INCS: two T-1s at each site. One T-1 was dedicated to voice and the other to data. With INCS, each store will have two T-1s, but they are connected to a Cisco 3660 device that supports inverse multiplexing for ATM (IMA).

IMA multiplexes multiple T-1s so they appear and operate as one logical connection, Kaercher says. "That's the beauty of the solution."

The single connection lets Best Buy send traffic over one link as opposed to dedicating specific types of traffic to each connection. This also lets the customer borrow unused bandwidth when needed because the end-user hardware sees all the T-1s as one link.

In the past, INCS was limited to a single T-1. This "expanded version" as AT&T calls it, is expected to be generally available in the fourth quarter.

The service lets Best Buy increase bandwidth by adding a T-1 without the need for new hardware. The Cisco 3660 supports up to eight T-1s.

The retail chain is starting out with 2.6M bit/sec to each store with the ability to support up to 12M bit/sec. Best Buy will send all voice, data and video traffic, such as high-definition television content, to its stores across INCS.

The company is also demonstrating Internet gaming at its stores, which can eat up a lot of bandwidth. This is why Best Buy was not satisfied with AT&T's first INCS implementation, Kaercher says. The company needed more than 1.5M bit/sec at its stores.

No other provider is offering an integrated voice and data service that supports more than a T-1's 1.5M bit/sec to each site. Sprint offers its Integrated On-Demand Network service that supports voice and data over the same connection, but that service maxes out at a full T-1. And the service does not support dynamic bandwidth allocation.

Best Buy is about to test another feature that's new to the AT&T INCS service. The company will establish two permanent virtual circuits (PVC) over its bundled T-1 connections: one for Internet traffic using AT&T's network-based firewall service, and another to carry corporate data traffic.

The benefit of two PVCs is that customers can dedicate an amount of bandwidth to two types of traffic and still be able to borrow from those dedicated allotments when they are not in use. Borrowing bandwidth on the fly that is dedicated to specific traffic is called dynamic bandwidth allocation, which AT&T INCS has supported since its inception. But today AT&T INCS customers using the original service can only establish a single PVC.

AT&T has not determined if dual PVC support will be included in its expanded INCS introduction later this year.

Best Buy is still early in its INCS deployment with 17 stores supporting the service.

"Conservatively we will have 175 to 200 stores connected this year," Kaercher says. "The remainder will come online in 2002." ◪

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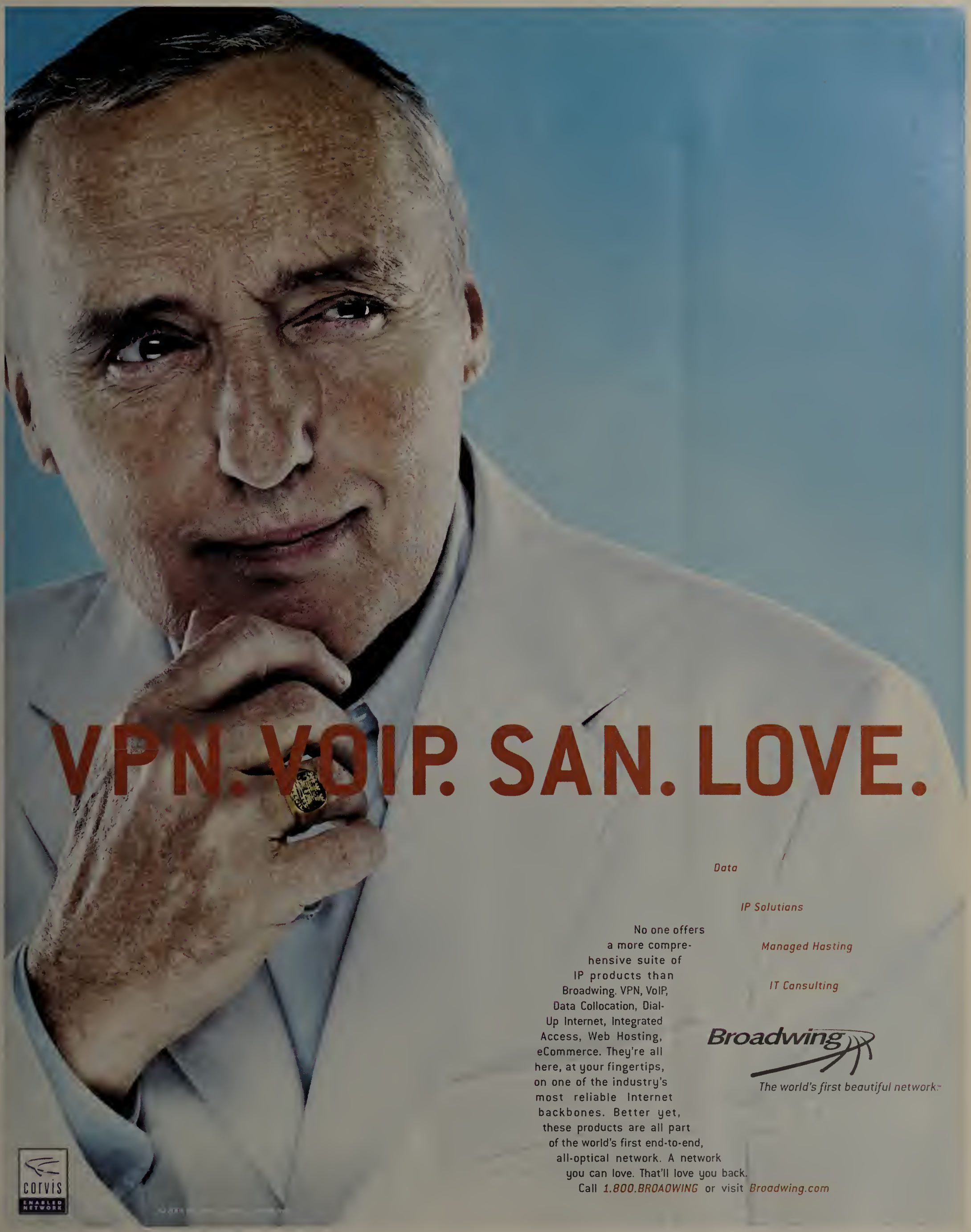
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The Edge

Service provider developments at the juncture between the enterprise and the new public network

Briefs

Nortel Networks has entered into an OEM and joint marketing agreement with **Sheer Networks**, a developer of service management software for broadband networks.

As part of the arrangement, Nortel will resell Sheer's MetroCentral software under the Nortel Network Inventory Management Platform label. MetroCentral will let carriers and service providers model and control the physical and logical aspects of their multivendor, multitechnology networks, Sheer officials say.

Sheer is a venture-funded company in which former Oracle COO Ray Lane is an investor and director. Other investors include Rein Capital, JK&B Capital, Jerusalem Venture Partners and Nortel.

Nortel: www.nortelnetworks.com; Sheer Networks: www.sheernetworks.com

Metropolitan switch/router vendor **VIPswitch** last week announced the resignation of CEO Luc Beaubien and the appointment of Don Gibbs to replace him.

Beaubien, who had been with VIPswitch for 2 1/2 years, says he is leaving because he feels Gibbs is the right person to guide the company through an IPO or an eventual buyout. He will remain with VIPswitch until the end of June, and then will take some time off to spend with his family before resuming his career in the technology industry in the Boston area.

Gibbs had been president and CEO of Positron Fiber Systems, a start-up focused on SONET add/drop multiplexers for the access market. Gibbs has also held multiple senior management positions at companies including Cognos and Mitel.

VIPSwitch: www.VIPswitch.com

Atrica unveils first product line

Three switches make up A series service provisioning line for metropolitan edge and core.

BY TERRI GIMPELSON

Start-up Atrica has announced the release of its first products: switches for building next-generation optical Ethernet networks for the metropolitan edge and core.

The company, funded by 3Com, (www.nwfusion.com, DocFinder: 4034) unveiled a product line that includes the A-2100 Optical Ethernet Edge Switch, the A-5100 Optical Aggregation Switch, the A-8100 Optical Ethernet Core Switch and the Ethernet Service and Network Management System (ESNM). Together, the products are designed to make up a soup-to-nuts metropolitan optical Ethernet provisioning system for service providers.

The A-8100 was designed to support data and circuit switched services, according to David Yates, Atrica's vice president of marketing. It can scale to 600G bit/sec — 300G bit/sec full duplex — and can support 30 10G-bit/sec links and 300 1G-bit/sec links.

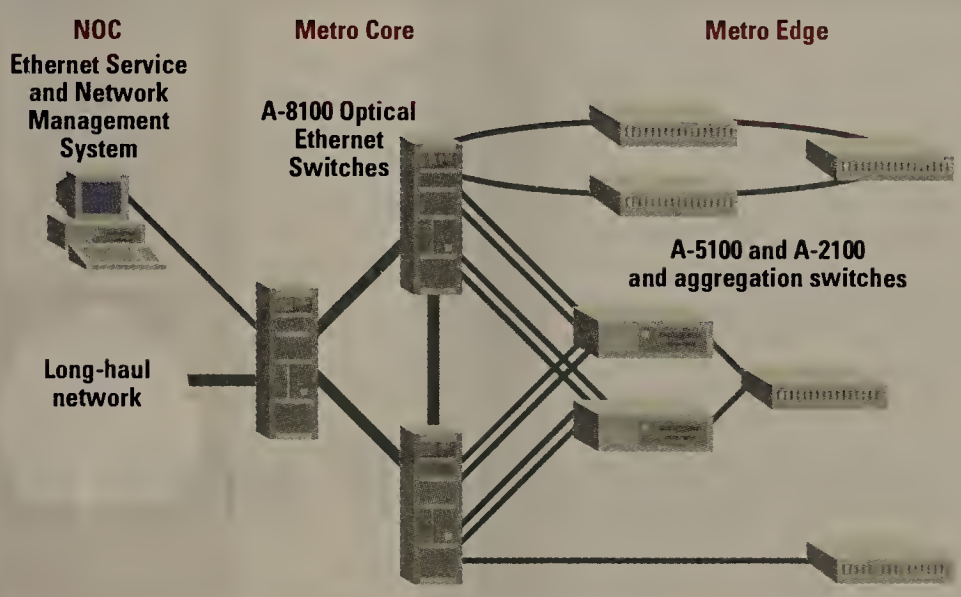
The box has redundant load-sharing switch cards, management cards and dual-inlet redundant power sources that are housed in a passive backplane. It also touts subsecond recovery and is compliant with Network Equipment Building Standards Level 3. Its starting price is $15,000, and it will be available in the third quarter of this year.

The A-5100 houses 24 1G-bit/sec ports and can handle 36 million packet/sec. It is

See **Atrica**, page 26

Bases covered

Atrica's A series optical Ethernet products provide aggregation of data and time-division-multiplexer services at the metropolitan core in ring, mesh and point-to-point topologies.



User finds bigger edge routers not always better

BY JIM DUFFY

BETHESDA, MD. — Broadband service provider eLink Communications doesn't necessarily believe the big boys have the best product when it comes to edge routing.

ELink says the smaller the better.

The company, which serves small and midsize businesses, has installed Tiara Networks' edge aggregation routers in its nationwide network to increase circuit density at its points of presence (POP). Tiara's 6200 series aggregation routers let eLink locate an entire POP — including redundant Tiara routers — in a single rack.

The Tiara 6200 aggregates up to 16 T-1 lines and includes dual Ethernet ports, integral DSU/CSUs, and dual hot-swappable fan modules in 1.5-inch rack units. This small footprint lets eLink deploy less equipment where space is at a premium.

Indeed, reducing wire counts and lowering circuit costs while expanding POPs to address fast-growing multitenant unit requirements were the main drivers behind selecting Tiara, eLink officials say.

"The [bigger players] don't offer anything in that [16 T-1] range," says Ron Matney, vice president of technology and architecture at eLink. "Our aggregation points were typically Cisco 4000s with serial cards, DSU/CSUs, the whole deal. In order to get to 16 T-1s, we were talking about buying legacy Cisco 7000s and $1,500 to $2,000 per T-1. In combining the Tiara with a Cisco 3600 router, we create a powerful aggregation point that is relatively small."

Matney says the Tiara routers will not be routing, per se, but will be functioning more as DSU/CSU banks for the 16 T-1s. The Cisco 3600s will do all of the route-table crunching, he says.

Juniper's M5 and M10 routers were "not even in the same price class," he says. "In secondary markets where I might be terminating 30 to 60 T-1s, I can go much less expensive with the Tiara."

ELink partners with commercial building owners to wire their buildings with a fiber-optic infrastructure to offer a range of services. ◪

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Efficient provides SHDSL for customer premises

New Gateway can support networks of 200 to 250 users, company says.

BY MICHAEL MARTIN

DALLAS — Efficient Networks this week is expected to announce a gateway designed to serve Symmetrical High-Density DSL to small and mid-size businesses, enterprise branch offices and enterprise teleworkers.

Called the 5950 SHDSL Business Gateway, the device complies with the International Telecommunications Union G.991.2 recommendation. SHDSL can run up to 20,000 feet from a central office at speeds ranging from 384K bit/sec to 2.3M bit/sec over a single copper pair.

And unlike the symmetric DSL (SDSL) services offered by DSL wholesalers and their ISPs, SHDSL is fully compatible with asymmetric DSL (ADSL).

The 5950, which will be generally available by the end of June, is capable of supporting a network of between 200 and 250 users, says Dano Ybarra, vice president of business management in Efficient's business solutions division. Previous Efficient gateways had relied on Motorola's Power PC 850 chip, but the 5950 uses the more powerful 855T chip.

Ybarra says the box can also support wire-speed VPN services by off-loading security processing to a Motorola MPC180 encryption chip. Other features of the 5950 include SNMP-based management software, letting users manage the gateway through SNMP or Telnet, and dial backup.

The gateway also includes support for the Virtual Router Redundancy Protocol, letting users maintain VPN sessions even if the gateway fails over to a back-up line.

Service providers likely won't begin offering SHDSL in the U.S. until later this year, says Mike Lowe, an analyst with research firm Pioneer Consulting. But once they do, Lowe believes SHDSL will become the standard business DSL service.

"There are a lot of people embracing this technology," he says.

Ybarra says incumbent providers and competitive providers have expressed interest in SHDSL and the 5950. Providers should be able to deploy SHDSL in their existing DSL Access Multiplexers by simply switching line cards, Ybarra says.

Ybarra says European providers should begin deploying the technology early in the second half of this year, and Asian providers should follow suit shortly after.

Efficient is one of the first DSL vendors to offer an SHDSL gateway for the customer premises. In other DSL markets — ADSL, SDSL and DSL over ISDN — it competes against numerous customer premises equipment providers, including Alcatel, Cayman and Westell.

Initially Ybarra says the 5950 will be distributed by Efficient's service provider customers, but eventually, because SHDSL is a ratified standard, business customers should be able to purchase SHDSL gateways through retail channels.

The list price of the 5950 is $600.

Efficient: www.efficient.com

Getting down to SHDSL business

Features of Efficient's 5950 SHDSL gateway include:

- Support for symmetrical speeds up to 2.3M bit/sec over a single copper pair.
- Support for speeds up to 4.6M bit/sec over two pairs.
- An embedded eight-port 10/100 Ethernet switch-firewall and optional VPN support.

Vendors scale down IP service switches

Smaller, less-expensive switches may encourage new services.

BY TIM GREENE

The Quarry iQ4000 is a scaled-down version of the company's first product.

Vendors of IP service switches are testing the possibility that less is more.

Quarry Technologies and Cosine are announcing smaller versions of their existing service switches that impose service characteristics — such as VPN tunneling, virtual routing and quality of service — on customer IP traffic. The idea is to customize traffic flows into services that are easily configured.

Quarry is introducing the iQ4000 and Cosine is introducing IPSX 3500. Each is controlled by its own management system that can define services, set and enforce policies on traffic and let customers provision their own services.

The two companies are following an industry trend in which service switch vendors introduce smaller, less-expensive versions of their products in an effort to attract more service provider customers, says Ron Westfall, a research director for Current Analysis.

"This is part of a normal product development, but it may have been accelerated to meet tighter carrier budgets," he says.

IP service providers are trying to sell more than just network connectivity, so they need these service switches. But they also require relatively small capital outlay and a potentially quick return on that investment, he says.

With that, Quarry's iQ4000 is essentially a scaled-down version of the company's first product, the iQ8000. The 10G bit/sec switch has eight slots with four available for I/O modules. These include ports for 10/100M bit/sec Ethernet, Gigabit Ethernet, ATM, packet-over-SONET and channelized time division multiplexing traffic.

With these interfaces, the device can serve as a service distribution point in a high-rise office building and link with a metropolitan optical service provider network. Or it could aggregate customer traffic at a local point of presence, the company says.

The switch can perform encryption and decryption at line speed from any port as well as quality of service applied per application.

Cosine is introducing IPSX 3500, the smaller version of its IPSX 9000. Designed for local points of presence, the IPSX 3500 supports network-based VPNs, firewalls, interworking between frame relay and IP Security networks, virtual routed networks and other services.

The Cosine IPSX is available in the second quarter and starts at $38,000. The Quarry iQ4000 starts at $55,000 and is available in July.

Quarry: www.quarrytech.com; Cosine: www.cosinecom.com

Atrica,
continued from page 25

also equipped with redundant power supplies. It costs $1,200 per Gigabit Ethernet port, fully configured, and is currently shipping.

Finally, the A-2100 supports legacy SONET and time division multiplexing equipment via circuit emulation. It supports T-1, T-3, OC-3 and OC-12 interfaces. Atrica claims this box also has subsecond recovery after failures and will interoperate with any Layer 2 switch. It costs $250 per 100M bit/sec Ethernet port, fully configured, and is shipping now.

ESNM is designed to enable point-and-click service provisioning. It features a Common Object Request Broker Architecture interface for integration with existing operational support systems, and collects traffic statistics to measure service levels, Atrica says.

The issue with this seemingly comprehensive system, warns Michael Kennedy of Network Strategy Partners, is its gamble on Ethernet and competition from rivals such as Riverstone, Extreme Networks and Ocular Networks, which are also dealing with optics in the metropolitan area.

"Atrica is making a bet on the industry using Ethernet as a WAN technology," Kennedy says. "It's an attractive opportunity, but Ethernet is not an attractive way to support voice."

RHK's Dana Cooperson agrees.

"Whenever you do [circuit] emulation, there are issues related to delay and latency," she says. "That's a big problem, especially when you have voice traffic. Supposedly this product was designed with buffers, but it definitely needs to prove itself to see if it meets the relevant standards."

Cooperson praises the system for its conventional wisdom but also points out caveats.

"Get SONET out of the picture, but keep all of its positives," she says. "The downside is . . . the more you ask carriers to be different than they are, the harder it is to sell something. If they can prove this is an extension of what carriers already know, like SONET, I think it'll be successful."

The system is being tested by France Telecom. According to Frederic Veysiere, managing director of France Telecom's Innovation group, the system is being used to increase data rates for LAN interconnections and back-haul capacity. Veysiere says the system is flexible enough for the company to also test it as an access technology.

While Veysiere is pleased with the initial release, he says he is anxious to test features, such as circuit emulation.

Atrica: www.atrica.com

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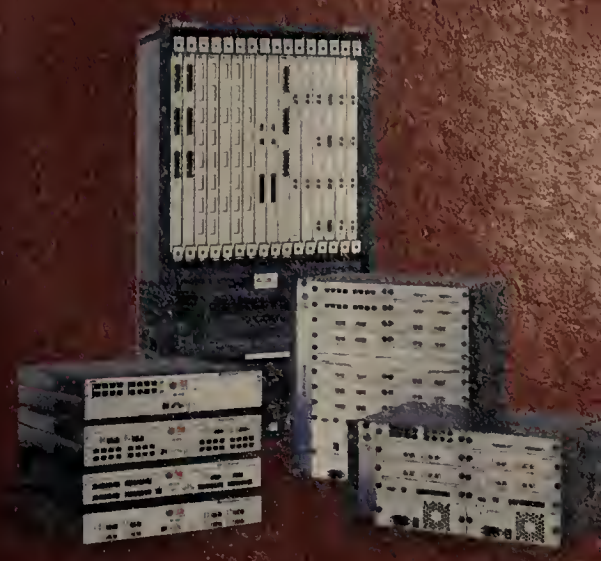

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Briefs

Application service provider **Interliant**, which earlier this month announced layoffs and a restructuring to focus on messaging and hosting services, is expanding its managed firewall offering. The ASP will offer the managed firewall service based on **Check Point** VPN and firewall technologies to businesses with small, less-complex needs. Interliant will also host the service for businesses whose systems reside outside Interliant data centers. The security services range from $200 per month to $10,000 per month. Interliant officials also said last week they have secured $19 million in equity funding from affiliates of Charterhouse Group International and Softbank Technology Ventures. Ernst & Young Technology said it would repurchase Interliant's previous $1 million investment in the technology firm.

Interliant: www.interliant.com

Sybase has integrated **SDL International's Translation Server** as a $25,000 option for its **Enterprise Portal Product**. EPP is middleware from Sybase for building a data warehouse that can push or pull data in multiple formats from or to data resources. With SDL Translation Server, the Sybase Enterprise Portal Product, which starts at $100,000, can instantly translate business documents.

Sybase: www.sybase.com

Computer Associates International announced an update for its antivirus software product, **Innoculated 6.0 for Windows**, which supports Windows 95, 98, ME, NT 4.0 workgroup and server and Windows 2000. Version 6.0, which starts at $995, now supports incremental updates of new virus signatures rather than requiring a complete software download.

CA: www.cai.com

Captus looks to thwart DOS attacks

BY ELLEN MESSMER

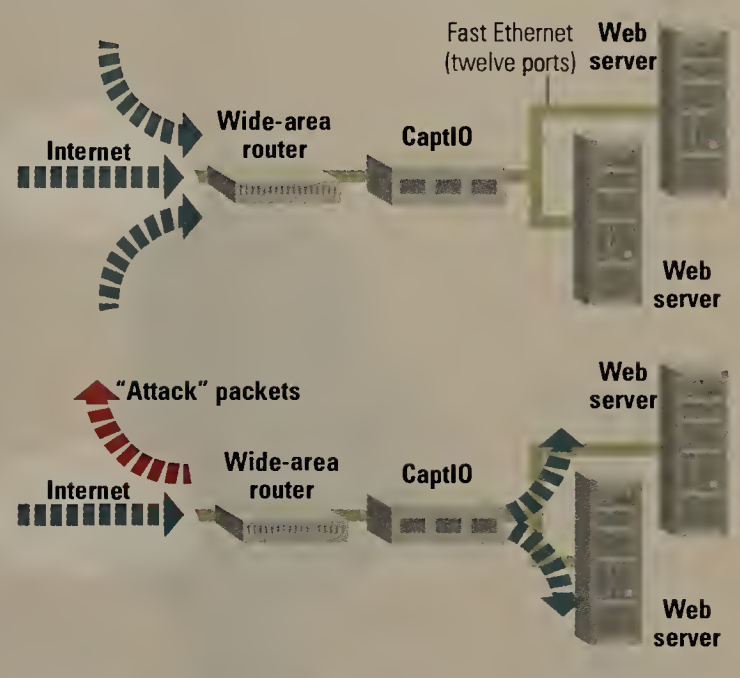
WOODLAND, CALIF. — Start-up Captus Networks has developed high-speed equipment that sits behind the WAN router to detect surges in incoming IP traffic that might signal a denial-of-service attack has begun on corporate servers.

The Captus equipment, which can also act as a high-speed firewall, is designed to curb denial-of-service attacks before they cripple user networks. It aims to stop attacks by throttling back the questionable traffic to identify denial-of-service packets vs. legitimate traffic. It also checks for spoofed network addresses by making a request for response and acknowledgement. Denial-of-service traffic is usually spoofed, and the Captus equipment is set up to deny this attack traffic or redirect it to another server for forensics purposes.

There are many varieties of denial-of-service attacks, including distributed denial-of-service attacks that originate as packets fired from multiple sources at a target server but controlled remotely through one host computer. Rich Helgeson, president of Captus, isn't ready to say the Captus equipment will stop every denial-of-service attack ever invented, but he says it can limit most of them.

Stop traffic

How the Captus Networks CaptIO device works to detect and stop denial-of-service attacks.



"The Captus equipment will stop most [denial-of-service] attacks in 10 seconds, Helgeson claims. Captus makes two versions of its product, the CaptIO, a 17-inch-by-1.75-inch single-rack box with 12 Fast Ethernet interfaces that costs $40,000, and its cousin, the CaptIO-G with one Gigabit Ethernet and eight Fast Ethernet interfaces, which sells for $55,000.

This equipment uses what Captus calls its "traffic limiting intrusion detection system" to notify network professionals of traffic surges, letting the company redirect suspect traffic. Captus last fall fielded an earlier version of its firewall/intrusion-detection device, which could sense unusual aggregate traffic patterns, but couldn't sort the good traffic from the bad.

Web hosting giant Exodus Communications has tested the Captus equipment in its lab and its data facilities, and is close to offering it as an anti-denial-of-service, value-added service to its customers.

See **Captus**, page 32

NetPro releases Active Directory tool

Software designed to detail Microsoft directory environment.

BY JOHN FONTANA

The Active Directory toolbox available to IT executives will get a little deeper this week.

NetPro will launch its DirectoryInsight tool, which provides change and configuration management for the directory service that is key to Windows 2000. IT executives are finding that to ease Active Directory migrations and maintenance, they need a range of third-party tools from vendors such as Aelita, Bindview, FastLane and NetIQ.

NetPro hopes to find its niche with DirectoryInsight, which promises to provide easy access to data detailing the directory's operation that would otherwise have to be mined manually.

DirectoryInsight helps IT track the ongoing population of objects in the directory, such as users, printers and applications, giving administrators a log of how their directory environment is growing. The tool also logs modifications made to the directory infrastructure, such as changes to configuration, schema, replication, policies and overall directory structure.

Corporate users say the tool provides a bird's-eye view of Active Directory and its ever-evolving world.

"This shows me in numbers what's out in my Active Directory sites, such as users, groups, organizational units and domains," says one directory administrator for a large bank in the Southeast who asked to remain anonymous. "I can see over time how information builds up. I can set up trending, track growth to see if I need to add a new domain controller in a location or change my replication schedule. And I can see the cause and effect of adding new objects."

The administrator says that without the tool it would be a very manual process to export the data from Active Directory. "This is very graphical and you see the data with some context."

See **NetPro**, page 32

www.nwfusion.com

DEFENDING AGAINST DoS

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'Net Insider . Scott Bradner

I DON'T GET IT

This ad campaign must have cost IBM a lot of money, but it sure is a dumb one. Two guys in baby blue space suits claiming to be from a parallel universe. It's sort of like the end of "2001: A Space Odyssey" set in corporate America.

In my opinion, it's the ad agency that must be from a parallel universe. And it's not only IBM that seems to have reached across the space-time continuum to find a doppelganger Madison Avenue.

Flipping through just a week's collection of trade journals and TV shows reveals a number of other examples of suspicious illogic. Does anyone actually understand what WorldCom is trying to say with its "Generation D" ads or who the company is trying to target?

How about the Genuity "Black Rocket" series? The very sight of a little toy rocket ship, the design of which Buck Rodgers would have considered quaint, can silence the most vocal critic.

How many people actually believe Microsoft's "five 9s" ads, which imply that the company's servers will have 99.999% uptime — which translates into about five minutes of downtime per year? It takes longer than that to apply the updates that come out over the course of a month. I note that the visuals that go along with the ads neglect to include a decimal point — maybe they actually mean 9.9999% uptime.

Come to think of it though, are the ads any less confusing than Microsoft's .Net "strategy"?

There are still more. Sun's "the dot in .com" series in which a large black sphere destroyed corporate boardrooms sure made me want to rush out and get one for myself.

Then again, having AT&T's business networking group portrayed as being chiseled in sandstone in ancient Egypt might explain some things I've observed about traditional telephone companies and suppliers.

I know it's hard to sell some things. It's even harder when it's no longer politically correct to use the old standbys like sex as a sales tool (although Computer Associates doesn't quite seem to have gotten that message, and that message will be nowhere to be seen at NetWorld+Interop next month in Las Vegas.) But I've seen enough good ads to know it can be done.

There just seems to be a bunch of companies that use ad agencies specializing in the obscure, and amazingly enough, these companies approve the results. Makes you wonder how good their judgment is when dealing with corporate business matters.

Maybe I'm getting old and out of touch but it seems to me to mirror the premise in TV's "Third Rock From The Sun" — visitors from outer space that don't quite get how humans think. I wonder what these agencies from far, far away get paid with — mirror-image, reverse logic dollars?

Disclaimer: Harvard has lots of real dollars, but did not express an opinion on these ads.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Loudcloud automates data center technology service

BY JENNIFER MEARS

SUNNYVALE, CALIF. — Loudcloud, an infrastructure service provider, is bringing its automated management technology into enterprise data centers.

Now large firms with their own data centers can have Loudcloud manage their Internet infrastructure without having to move their hardware into a third-party facility. In the past, Loudcloud only offered its managed services in data center space owned by hosting partners Exodus, Equinix and AT&T.

Loudcloud uses Opsware technology to scale Internet systems automatically and charge customers on a pay-per-use basis. Opsware 2i (the "i" stands for "inside your data center") was unveiled last week and brings the automation technology into customer data centers for the first time.

With Opsware 2i, Loudcloud deploys software on servers in the customer's data center and integrates it with the customer's software and network infrastructure. Loudcloud engineers can then monitor, manage and scale the customer's Internet operations through the Loudcloud network operations center that is staffed round-the-clock.

The announcement last week was one of several from the company, which is focused on bouncing back after a disappointing IPO. Founded by former Netscape executive Marc Andreessen, Loudcloud recently reported fourth- quarter revenue of $8.9 million, a 94% increase over the previous quarter. But fourth- quarter losses were $58.8 million, and its stock dropped more than 20% after its IPO last month.

Analysts say the firm is refocusing on the enterprise market after the dot-com demise that stripped it of much of its customer base. By bringing services into enterprise data centers, Loudcloud may ease the concerns of some organizations still wary of outsourcing because of their reluctance to move hardware offsite.

"This serves to eliminate at least one area of potential objection," says Bill Martorelli, vice president of e-services and sourcing at the Hurwitz Group.

The question, Martorelli says, is whether Loudcloud can offer the same service in an enterprise data center as it could in a collocation facility.

Also last week, Loudcloud unveiled its Integration Smart Cloud service, which connects Loudcloud managed infrastructure with a customer's back-end platforms. The service is based on message queuing technology from integration software vendors such as BEA Systems, TIBCO and webMethods.

The Integration Smart Cloud service would let an online banking application, for example, send a fund transfer request directly to a back-end banking transaction system, eliminating duplication, loss and other errors.

Martorelli says he's unaware of other infrastructure service providers that offer this type of integration capability.

Loudcloud: www.loudcloud.com

NetPro,
continued from page 29

The tool works in conjunction with NetPro's DirectoryAnalyzer, which ensures the health and performance of Active Directory.

"With DirectoryInsight, we are delivering a tool to those directory customers that are not having an easy time managing change," says Travis Campbell, senior product manager for DirectoryInsight. "For example, customers will have directory-enabled applications that will modify directory schema, and they need to be able to associate those modifications with any performance changes."

DirectoryInsight runs as an agent on a server that monitors Active Directory's Global Catalog, which holds a replica of every object in the directory. The agent reports on changes made to the catalog and writes them to a database. The agent also loads an ActiveX control into an administrator's Web browser, which is used to query the database. The console can create security groups so only certain administrators have access to the DirectoryInsight data.

DirectoryInsight will ship next month and is priced at $5 per user object. Current DirectoryAnalyzer customers who buy the new software will be charged $3 per user object.

NetPro: www.netpro.com

Captus,
continued from page 29

"We're looking at it as the basis for managed security services," says Scheron Briones, director of network technologies at Exodus, who says the Captus gear appears to achieve its claim of stopping denial-of-service attacks. As a managed service provider, Exodus would manage the Captus equipment in its facility for customers, offering denial-of-service response services on a value-added basis. Briones says Exodus hasn't figured out a pricing model for all this, however.

The Captus equipment — which competes against firewall and intrusion-detection security gear from Nokia, Check Point, Internet Security Systems, Cisco and Arbor Networks, among others — is also being tested at NASA Ames, recently renamed the NASA Advanced Supercomputing Division.

"This device is more of a firewall for us than anything else, and it reaches gigabit speeds," says Derek Shaw, IT security group lead at the NASA location. At NASA, a lot of aerodynamics testing is conducted through simulation on supercomputers, and NASA uses the CaptIO-G product as a firewall inside the network, which reaches gigabit speeds.

Captus: www.captusnetworks.com

Security

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New tools attack privacy issues

BY CAROLYN DUFFY MARSAN

PRIVACY PROTECTION

Web site operators wrestle with how to protect customer information.

IT managers struggling to enforce corporate privacy policies on their Web sites can choose among several new enterprise-class software tools that automate various aspects of the consumer privacy-protection process.

But no silver bullet exists to eliminate the manual and time-intensive task of analyzing Web pages and databases to determine what customer information is being collected, how it is being used and who has access to it — the key components of protecting privacy.

Protecting customer privacy is "90% process and 10% code," says Mark Schenecker, CTO for PartMiner, a supplier of electronic components.

PartMiner operates a Web-based exchange called Free Trade Zone that has attracted 80,000 users since it launched last June. To prove that the Web site is neutral and trustworthy, PartMiner underwent an exhaustive, months-long privacy audit and earned a seal of approval from Ernst & Young.

To protect customer information, PartMiner put its development team in a separate, access-controlled facility, outlawed the practice of taking printed materials out of the building, and trained its employees on why they can't share customer data. Most data is encrypted; the rest is secured behind the company's firewall.

"The audit process forced the IT staff and managers to think differently about how we put the site together," Schenecker says. "It really connected us to the business processes."

PartMiner isn't alone. Many Web site operators are grappling with privacy issues as regulations, such as the Gramm-Leach-Bliley Act for financial institutions and the Health Insurance Portability and Accountability Act (HIPAA) for hospitals and insurance companies, proliferate.

When it comes to privacy projects, "most of the money is spent to get the privacy policy implemented," says Kristin Valente, national leader of innovative assurance solutions implementation at Ernst & Young. "It's the time it takes you to figure out what your privacy policy is, how you retrain employees, getting your processes refined that adds up. The technology is probably not that large of a component of the cost."

Executive management teams usually determine corporate privacy policies. But IT managers are often tapped to determine what personally identifiable information is being collected about customers — such as names, addresses and online behavior — and how that information is being handled. They also are responsible for securing information against unauthorized access.

Many IT departments turn to consultants, such as IBM, Fiderus and Ernst & Young, which offer privacy risk assessments, audits and seal programs. These services cost between $50,000 to $500,000, depending on how many Web sites are involved and how complex the privacy policies are.

One company that's relying on outside auditors is Nexity Bank, a 1-year-old Internet bank that uses Ernst & Young to review its business process, policies and information systems every quarter to ensure that the privacy of its 12,000 customers is protected.

Nexity Bank President David Long says consumers want their information to be safe and secure in the same way that they want their bank to be safe and secure.

Long says Nexity Bank had the advantage of building its information systems from scratch to support pending privacy legislation such as the Gramm-Leach-Bliley Act. Banks already have many regulations regarding "data storage, data use and data mining," Long says. "Being in a heavily regulated industry like banking ... we have had to be very aware of privacy."

IT managers who want to bring privacy monitoring and management in-house can tap new software tools that help solve some of the technical aspects of the privacy problem. The tools cost between $70,000 to more than $1 million, depending on the number of Web sites monitored and the complexity of the privacy policies.

Some of these tools are add-ons to security products. These include Tivoli's SecureWay Privacy Manager, which is an extension to its access control system, and Courion's self-service identity management products, including PasswordCourier and ProfileBuilder. Other tools, such as iDcide's PrivacyWall and PrivacyRight's TrustFilter, are designed specifically for Web-based privacy policy enforcement and auditing.

IDcide's PrivacyWall software products monitor Web site traffic and look for privacy-related information such as birth dates, ages or credit card numbers being collected or shared. The Site Monitor software ensures that the information coming in or out over the Web is in compliance with the company's privacy policy.

"Our software looks for potential privacy problems, such as cookies, Web bugs, data spills, pages with customer data accidentally on them and privacy policy links," says iDcide CEO Ron Perry. "The software is customizable so it can look for specific keywords."

Available since February, PrivacyWall has already attracted its first customer: Proctor & Gamble, which is rolling the software out to monitor 100 Web sites with more than 50,000 Web pages.

Also unveiled this winter, PrivacyRight's TrustFilter is a middleware software application that runs on a dedicated server. TrustFilter has two components: a permissions engine that specifies and enforces how personally identifiable customer information will be used, and an audit server that records collected information and access to it.

"You can codify laws such as [the Gramm-Leach-Bliley Act] and HIPAA into the permissions engine," says Scott Beechuk, CEO of PrivacyRight. "It monitors and enforces those rules as each piece of personal information is accessed."

Also useful for privacy projects are generic database tools for unifying customer data and setting roles-based access. Companies such as NCR, Oracle and IBM offer such tools, while privacy-specific middleware to control database views is under development by Zero Knowledge.

On the horizon is an emerging standard that lets Web browsers read specially encoded privacy policies on Web sites and to warn users about information-gathering practices. The Platform for Privacy Preferences (P3P) initiative converts English-language privacy policies into machine-readable code. The P3P language is just starting to catch on, with support in Microsoft's Internet Explorer browser expected later this year. ◪

Selected enterprise-class privacy products

A variety of tools are hitting the privacy market. Here's a sample:

Company/tool	Description
Courion/PasswordCourier and ProfileBuilder www.courion.com	Server software that lets customers reset their passwords and manage personal data collected about them.
iDcide/PrivacyWall Site Monitor www.idcide.com	Server software that uses a sniffer to detect privacy-related traffic on a Web site and enforce privacy policies.
IBM/P3P Policy Editor www.alphaworks.ibm.com	Free software that walks Web site operators through the process of creating a machine-readable privacy policy using the P3P standard.
PrivacyRight/TrustFilter www.privacyright.com	Middleware that runs on a dedicated server and enforces rules about how customer data is used and accessed.
Tivoli/SecureWay Privacy Manager www.tivoli.com	Access control system for protecting customer data and enforcing privacy policies. It requires Tivol's SecureWay Policy Director software, and is purchased on a per-application basis.

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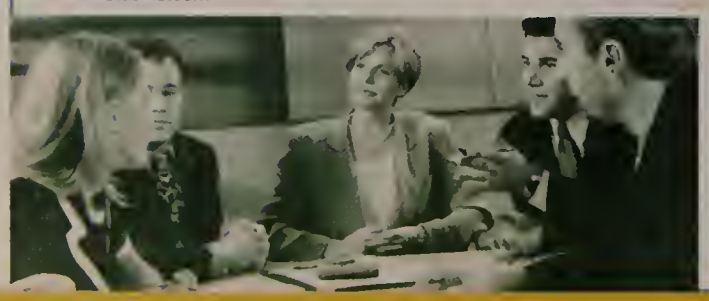

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- ❑ 102 Competitive Carrier (Loca Long Distance)
- ❑ 103 Broadband/Data Local Exchange Carrier
- ❑ 104 Wireless Carrier (Cellula
- ❑ 105 Wireless Carrier (LMDS/MMDS/Microwave
- ❑ 106 Satellite Service Provide
- ❑ 107 Backbone Network Prov
- ❑ 108 ISP – Internet Service Pr
- ❑ 109 ASP – Applications Serv
- ❑ 110 VPN – Virtual Private Network Provider
- ❑ 111 Carrier Service Reseller
- ❑ 112 Cable TV/Broadcast/Rad
- ❑ 113 Colocation Services
- ❑ 114 Public Utility (Non-Telco

CORPORATION / INSTITU

- ❑ 115 Communications Equipm Manufacturer
- ❑ 116 Education
- ❑ 117 Financial Institution/Ven Capital Firm
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- ❑ 119 Legal Services
- ❑ 120 Manufacturer (Non-Com
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❑ 131 VAR

OTHER
❑ 132 Association
❑ 133 Publishing/Media/Advertising
❑ 199 Other _____

2. IF YOUR COMPANY IS A SERVICE PROVIDER, PLEASE INDICATE ALL AREAS OF BUSINESS: (check all that apply)

❑ 201 Incumbent Carrier (Local & Long Distance)
❑ 202 Competitive Carrier (Local & Long Distance)
❑ 203 Broadband/Data Local Exchange Carrier
❑ 204 Wireless Carrier (Cellular/PCS)
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❑ 318 Software Development
❑ 319 Telecom Systems Management
❑ 399 Other _____

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❑ 401 Public Network Products/Services
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❑ 518 Outside Plant Equipment
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❑ 521 Satellite Communications
❑ 522 Softswitch Applications
❑ 523 Software
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SUPERCOMM Plenary Panel – Wireless Focus

Monday, June 4, 8:15 am – 9:15 am

Stephen M. Carter
CEO, Cingular Wireless

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Executive Vice President,
Verizon Communications and
President & CEO, Verizon Wireless

SUPERCOMM Opening Keynote Address

Tuesday, June 5, 8:00 am – 8:45 am

Edward E. Whitacre, Jr.
Chairman & CEO, SBC Communications

SUPERCOMM Plenary Panel – Converged Networks: Communications for the Information Future

Wednesday, June 6, 8:00 am – 9:00 am

Chairperson: **Krish Prabhu**, COO, Alcatel

Panelists:

Gururaj "Desh" Deshpande, Founder & Chairman, Sycamore Networks • **Kevin J. Kennedy**, Senior Vice President, IOS Technologies Division and Service Provider Line of Business, Cisco Systems • **Jeong H. Kim**, Group President, Optical Networking Group, Lucent Technologies • **Patrick Nettles**, Chairman & CEO, CIENA Corporation • **Susan Schramm**, Senior Vice President, Sales & Marketing, Siemens Carrier Networks

SUPERCOMM Evening Keynote Address

Wednesday, June 6, 5:15 pm – 6:00 pm

James Q. Crowe, President & CEO, Level 3 Communications

Interviewer: **Dennis Kneale**, Managing Editor, *Forbes Magazine*

SUPERCOMM Closing Keynote Address

Thursday, June 7, 8:00 am – 9:00 am

Peter W. Huber, Senior Partner, Kellog, Huber, Hansen, Todd & Evans

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GMF/EntNet/IEC Luncheon Presentation
Ellen M. Hancock, Chairman & CEO, Exodus Communications

12:15 pm – 2:00 pm, Tuesday, June 5

IEC Information Industry Luncheon Presentation
Afshin Mohebbi, President, Worldwide Operations, Qwest Communications

12:30 pm – 2:00 pm, Wednesday, June 6

IEC Information Industry Luncheon Presentation
Arun N. Netravali, President, Bell Laboratories, Lucent Technologies

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Technology Update

An Inside Look at the Technologies and Standards Shaping Your Network

Ask Dr. Intranet

By Steve Blass

How can we monitor remote sites through Hewlett-Packard OpenView Network Node Manager using network address translation?

HP OpenView NNM uses the Simple Network Management Protocol (SNMP) to remotely monitor and manage network elements. SNMP is based on the connectionless User Datagram Protocol (UDP), which is typically blocked by firewalls and routers at the Internet/intranet boundary. The most recent entry I found in the HP knowledgebase for OpenView and NAT, dated July 2000, says OpenView does not support NAT. In general, transporting remote network element management traffic across your security perimeter in unencrypted UDP packets is a bad idea. Use an authenticated, encrypted VPN tunnel to cross the security perimeter. If that isn't possible, set up collection agents inside the remote networks using NNM and then use a VPN connection, FTP or e-mail to gather batches of SNMP data on a regular schedule. Remote SNMP alarms and traps that need immediate attention can be transported via pager or e-mail using OpenView's paging hooks. Another approach is to use fixed NAT addresses for your network elements and set up firewall rules to let the traffic pass. It also is possible to use the program udprelay, and one of the SNMP source code packages available on the 'Net, to build an SNMP gateway across your NAT perimeter.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.intranet@changeatwork.com.

Satellite speeds Web content

BY JIM RAY

The Internet's latency and lack of reliability is largely due to its decentralized architecture. After all, the Internet is essentially a federation of networks making a best-effort attempt at delivering content. While network technology is improving at a rapid rate, the average request for a Web page still traverses about 17 terrestrial network exchange points, each of which can cause additional delay or lose packets.

Using satellite rather than terrestrial transmission can reduce the number of exchange points and improve network reliability and performance.

Satellite technology is an ideal match for content delivery networks, which replicate and distribute Web content to multiple facilities in dispersed locations. When users request that content, it is served locally, rather than from an origin server located far away.

Because satellite networks are inherently multicast-enabled, they achieve significant economies of scale when simultaneously distributing content to multiple locations. A satellite-based content delivery infrastructure includes:

• Popularity-based caching — Every downlink facility or point of presence is equipped with multicast-enabled network caches that locally store popular Web objects as they are requested by end users. These appliances increase network performance and reliability, and conserve upstream bandwidth. Multicast-enabled caches are essential for satellite networks to complete multicast push of content.

The caches operate via one-way IP over satellite with an asymmetrical terrestrial return link and via two-way IP over very small aperture terminal for the most flexibility. In two-way mode, caches would need to offer HTTP acceleration to mitigate the impact of satellite round-trip latency on the TCP protocol.

• Scalable and reliable streaming media delivery — Scalable streaming media supports all major formats, including Windows Media, MP-3 and MPEG-1. Today's streaming solutions are being sized to distribute up to 20,000 simultaneous 300K bit/sec broadband streams from the edge downlink facility or other downstream node to end users.

While on-demand streaming is forecast to comprise the lion's share of the streaming market, live streaming is crucial to some applications, such as real-time sporting events and live corporate addresses. Also, live streaming is a core competency of satellite service providers, as the content must be sourced from its origin, and satellite networks avoid the majority of bottlenecks in terrestrial networks.

• Traffic management — Directing both global and local traffic to optimal nodes is essential. Globally, end users requesting content are directed to the node in the service provider's network that can best serve the request quickly and reliably. While this can be highly dependent on geographic location, other deciding factors include the current workload on each node and the traffic congestion between each node and the end user. Locally, switches and load balancers use a variety of techniques to spread the workload evenly among available servers, or to direct particular traffic types to the appropriate device for optimal handling.

• Intelligent content distribution and management — This component orchestrates the centralized distribution of content to remote nodes and incorporates reliable multicast techniques to guarantee the quality of distributed content, check for distribution errors, manage versions of content and automatically update nodes with fresh content. Combining this intelligent multicast content push with the unicast content pull derived from user requests provides the opportunity to create tiered services through local content hosting and insures high quality of service.

• Content-oriented features — These capabilities, including user authentication and billing integration, are the application-level technologies that turn access service providers into content-driven services.

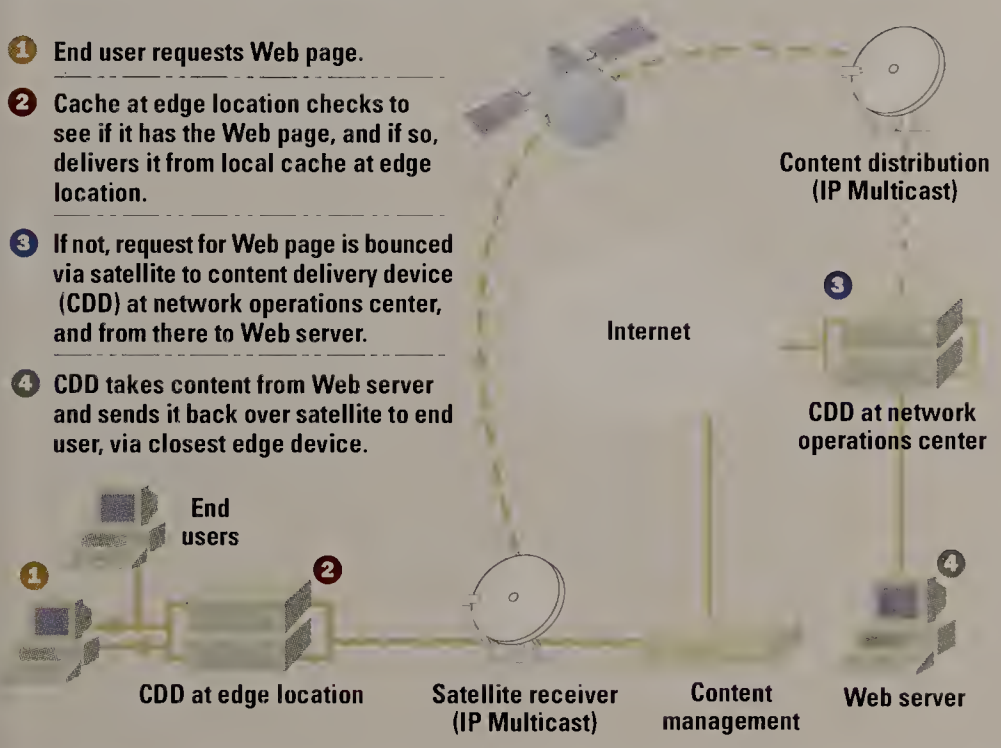
While today's Internet is primarily a terrestrial network, many satellite service providers and operators are moving quickly to offer content delivery services.

Ray is product marketing manager at InfoLibria. He can be reached at jray@infolibria.com.

HOW IT WORKS

Satellite-based content distribution and delivery

Using satellite technology to distribute content closer to end users avoids multiple terrestrial hops, thereby increasing the efficiency of content delivery networks.



Got great ideas?

Network World **is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Features Editor Neal Weinberg (nweinberg@nww.com).**

Gearhead . inside the network machine . Mark Gibbs

TERRIFIC TIME TOOL IS TOPS

This week we bring you a change to our scheduled programming (which was to be more wireless stuff) with a bijou divertissement:Time.

In past columns, we covered Network Time Protocol (NTP) and related utilities. In this column, we bring you a fine NTP-based tool and one that is completely free (our favorite price point).

WorldTime from PawPrint.net (www.pawprint.net) is a winner. The author created the program because he didn't want to pay what he saw as extortionate prices for an NTP client.

WorldTime uses either NTP Daytime (RFC 868) or SimpleTime (RFC 867) protocols to communicate with timing servers, which means your PC's clock will be accurate to plus or minus 1 second (a full NTP implementation — which gives you an accuracy of plus or minus 200 milliseconds — is much more complex to implement).

The program comes with a database of more than 1,300 worldwide locations and you can add your own locations as needed. It also has a database of time servers and, as with locations, these can be modified or added to as required.

What we really like is World Time's ability to define any number of location-specific clocks that can be displayed in a row in a window.The window can be set to be permanently top-most, float like any normal window, have its title and status bars hidden, and have the home time and date appended to the title of the window that currently has the focus.

WorldTime also includes a time calculator (how many days to Christmas and so on) and astronomical data (sun and moon rising and setting times) and a map that can display Earth at a zoom anywhere from the surface to 37,080.18 kilometers in various projections with selected locations plotted and that can be rotated with the mouse and show night and day and . . . wow.

The map display also supports overlays so you can add your own mapping data (such as office locations).

There's also a utility to track time since or until a date at a specific location, and you can set alarms for events and chimes for quarters, halves and hours and select your own sounds. You can also have it make sounds when it synchronizes and announce when it has done so with any message you like.

Oh, and there's also a calendar and a stopwatch.And WorldTime can automatically set your PC clock or do so only on demand, and you can configure the font and font size and color for the clock display for each location.

If all that wasn't enough, World Time can live on a machine in, for example, your demilitarized zone, and act as a timeserver for the rest of your network!

WorldTime is one of the finest utilities we have come across for some time. It is ambitious, reliable, has an amazing feature set, and is free.The author deserves a round of applause from the Internet community. We award World Time and PawPrint.net 10 gear teeth out of 10 and a commendation!

Sync to gearhead@gibbs.com.

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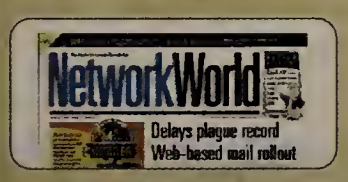

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Opinions

Editorial

CERT looks to cash in on security data

For 13 years the CERT Coordination Center — originally called the Computer Emergency Response Team — has been the Internet security watchdog. But CERT's decision to sell sensitive information raises the question of whether CERT is abandoning its mission.

CERT, which is federally funded and operates under the aegis of the Software Engineering Institute (SEI) at Carnegie-Mellon, has advised the public on everything from Internet virus outbreaks to denial-of-service attacks and software vulnerabilities.

When it identified a problem, CERT shared the information with the Department of Defense and posted its famous "CERT advisories" on the Web. If a product was involved, CERT gave the vendor 45 days to fix it before announcing the vulnerability to the world.

But now CERT plans to sell this sensitive information to those willing to pay big bucks (and be sworn to secrecy). To get this info, you have to pay $2,500 to $70,000 to join the Internet Security Alliance (ISA), a group just formed by CERT, SEI and the Electronic Industries Alliance trade association. Nasdaq and the Mellon Financial Group are said to be among the founding ISA members.

Why should we taxpayers pony up $3.5 million — which is what we gave CERT last year via the Defense Information Systems Agency and General Services Administration — if CERT is now selling information?

CERT Coordination Center team leader Shawn Hernan says CERT's employees already do paid work for corporations and this simply represents a broadening of those activities.

Of course CERT has every right to try to get the earliest drop on security bugs and sell them. But the question is, should taxpayers subsidize this? Why not have the federal agencies that need the data join as ISA members instead of the government funding CERT?

Hernan says, "CERT is going to be able to do a lot more than it has in the past with this funding. We're not trying to double-dip the federal government."

CERT's not a crook. In fact, the American public owes CERT a debt of gratitude for its work over the years. But the old CERT is gone. The Internet, too, was once subsidized by the federal government until it became apparent the world would pay for IP services. That day may be approaching for CERT, too.

— Ellen Messmer
Senior editor
emessmer@nww.com

Message Queue

DIRECTORY STANDARDS

Regarding the article "Directory standards see renewed vendor action" (www.nwfusion.com, DocFinder: 4025): I've spent the last several years helping two large corporations implement Microsoft's Active Directory in an environment with Unix, Linux and NetWare 4.1. I'm now consulting with a large corporation implementing Novell's eDirectory in an environment with the same mix as the other two, plus NetWare 5.1. The differences in directory technologies are very dramatic. I never thought I'd be saying this, but in my opinion the Directory Services Markup Language working group without hesitation should take Novell's technology and publish it as the standard.

Robert Schwein
Boston

It seems that Microsoft is trying to slap something together with bailing wire, duct tape and gum. I think Novell's offering will be well thought out due to the company's more than eight years of dealing with directories, compared with Microsoft's one.

Jason Kramer
LAN administrator II
University of Kansas
Lawrence, Kan.

NOT FULLY BAKED

Regarding "High-speed wireless LANs are coming" (www.nwfusion.com, DocFinder: 4026): It is difficult to visualize wireless LANs — immature technology with high costs and power requirements, small coverage areas, steep learning curves and little support — being a more effective way of delivering data than wire/fiber LANs.

When high-speed wireless LAN technologies can deliver complex visual data to handheld devices (think retail consumers), they will explode. Until then, they are "demonstration" projects.

Jim Pivonka
Owner
Jim Pivonka Consulting
La Crosse, Kan.

GO CONFIGURE

Regarding "Managing configuration changes" (www.nwfusion.com, DocFinder: 4027): So configuration management is a "new" discipline? How do you think organizations have been achieving 99.9% availability for the past three decades?

Automation is a fine adjunct to policy and standards but is not an appropriate substitute. Nor will automation work in the absence of rigorous standards and policy. Effective change management processes are the catalyst for configuration management capabilities.

Tim Houghton
Senior IT architect
TD Bank Financial Group
London, Ontario

I agree that configuration management is more important today than ever. However, the author is obviously recommending the architecture his company uses in its software.

Agent-based technology is flawed for several reasons. First, it's too time-consuming to deploy across large businesses. Second, rolled-up data means that queries are not real-time and the data will be inaccurate. Third, new machines are added continuously, and if the agent is not added, that piece of equipment is not included in the results of the user's query.

Exception-based reporting utilizing native API calls is the most effective method of managing the configuration of your servers and workstations. The information is real-time and accurate, and if the machine is in your network, it will be reported on automatically. There are no agents to configure, and the software can begin reporting as soon as it is installed.

Allowing vendors to write articles that proclaim the best architecture for any type of network management is irresponsible and misleads your readers. If you are going to print an article of this type, your staff should research the subject for accuracy.

Matt Miller
Sales manager
BindView
Houston

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, *118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.*

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In the Works . Tim Kuhfuss

WANTED: A BETTER WAY TO KEEP IN TOUCH

The purpose of this column is to let all companies know well in advance what I want for Christmas. I don't want it for free; I'm willing to pay a fair market price. I don't believe the product I'm going to describe exists yet — at least it doesn't exist in an integrated, easy-to-use form.

Imagine the following: A meeting is taking place to figure out a way to increase the performance of a scientific model. It is soon discovered that the key to success is lightweight communication protocols. Unfortunately, no one in the room has expertise in this area. Wait, Rich is an expert. Let's get him over here. But Rich is at a meeting in Washington. Let's call him. We can try, but I think he's giving a presentation right now. Oh well, I guess we can get together when he gets back.

Now imagine this scenario: The same meeting is taking place. We realize we need Rich to help us so we fire up the "Where's Rich" program. It says he's traveling; he's scheduled to give a talk at any time now, but he's still in touch. We pick up the phone and give him a call, but he's not receiving voice calls. No problem: We leave a text message. Three minutes later Rich e-mails us the answer.

If we are to make the second scenario more common, the following are needed:

- A personnel-tracking device. This device should know where I am and who is around me. It should also know when I'm in "do not disturb" mode.
- A personnel-communication device. This super cell phone should indicate the person's availability and let me freely switch between voice and text messaging. It should also translate voice into text so I don't have to bother with a tiny keyboard.
- A real-time calendar. This calendar should know where I'm supposed to be, who should be with me and what my availability status is. If a meeting is running late or breaks up early, the calendar should be updated.
- A who's who database. I need a database of people I know or am likely to encounter. The database should indicate how important these folks are to me and when they can interrupt my current activity.

I'd like all the above in a single package. This thing should easily fit into my pocket. If it were small and good looking enough, I'd probably even wear it.

I want it because it will provide huge potential productivity gains for my organization. It will allow my employees the freedom to work wherever they want.

Anyone out there have a clue when I can get one of these things? Please let me know so I can get my order in — ideally, before Dec. 25.

Kuhfuss is CIO of Argonne National Laboratory, one of the U.S. Department of Energy's largest research centers. He can be reached at tckuhfuss@netscape.net.

Yankee Ingenuity . Howard Anderson

WHAT WE NEED IS A NEW COMMON ENEMY

I am going to let you in on a secret: There never, ever was a Y2K problem. Never. And almost all of us knew it. But we knew if we kept our mouths shut, money would pour in like rain. If you are a CIO, you need a common "enemy" to suck out extra funding from your corporation, and Y2K was this common enemy. Your legacy systems and applications were getting old. But if you funded their replacements, the cost got charged to your profit center. So, clever you — you waited. Along came the specter of Y2K, and the suits in corporate suggested that if you needed extra funding, just ask. So you took the money, built networks and added new applications.

Years ago John Chambers told me that Cisco's routers would work just fine through the year 2000. But he wasn't going to "certify" them because everyone was upgrading to his new, higher-powered and higher-cost certified Y2K-compliant products. If your salesforce automation application was getting a little long in the tooth, you could just declare it Y2K noncompliant and spend some of the manna from corporate heaven on a new one. This extra funding gave most corporations 50% to 100% larger budgets every year from 1996 to 1999.

The problem today is companies and carriers have no new enemy. You need an enemy if you are going to get extra funding.

For a while after the Y2K party subsided, it looked like dot-coms might be the new enemy. Every company lived in mortal fear that some Internet upstart was going to steal its customers. The CIOs of America marched back into the boardroom with their collective hands out.

At the same time, the venture industry was funding all these dot-coms — all of which had no systems and needed Sun servers, Oracle databases, Cisco routers, EMC storage and all sorts of systems integrator help from Viant, Scient, Sapient and Diamond Technology. Furthermore, salaries were going up double-digit numbers each year because these new companies were hiring personnel from the incumbents.

When it turned out that the dot-coms were dot-dead, the party was over. Funding and the Nasdaq crashed. Bummer.

The same scenario applied to the carriers. As long as the competitive local exchange carriers (CLEC) were prospering, the carriers were spending. The equipment vendors were giving overly generous terms to both the CLECs and the traditional carriers. They gave financing to the upstarts because they wouldn't buy unless they got funding, and the carriers that could afford to buy wouldn't unless there was a string of new carriers threatening at the gate.

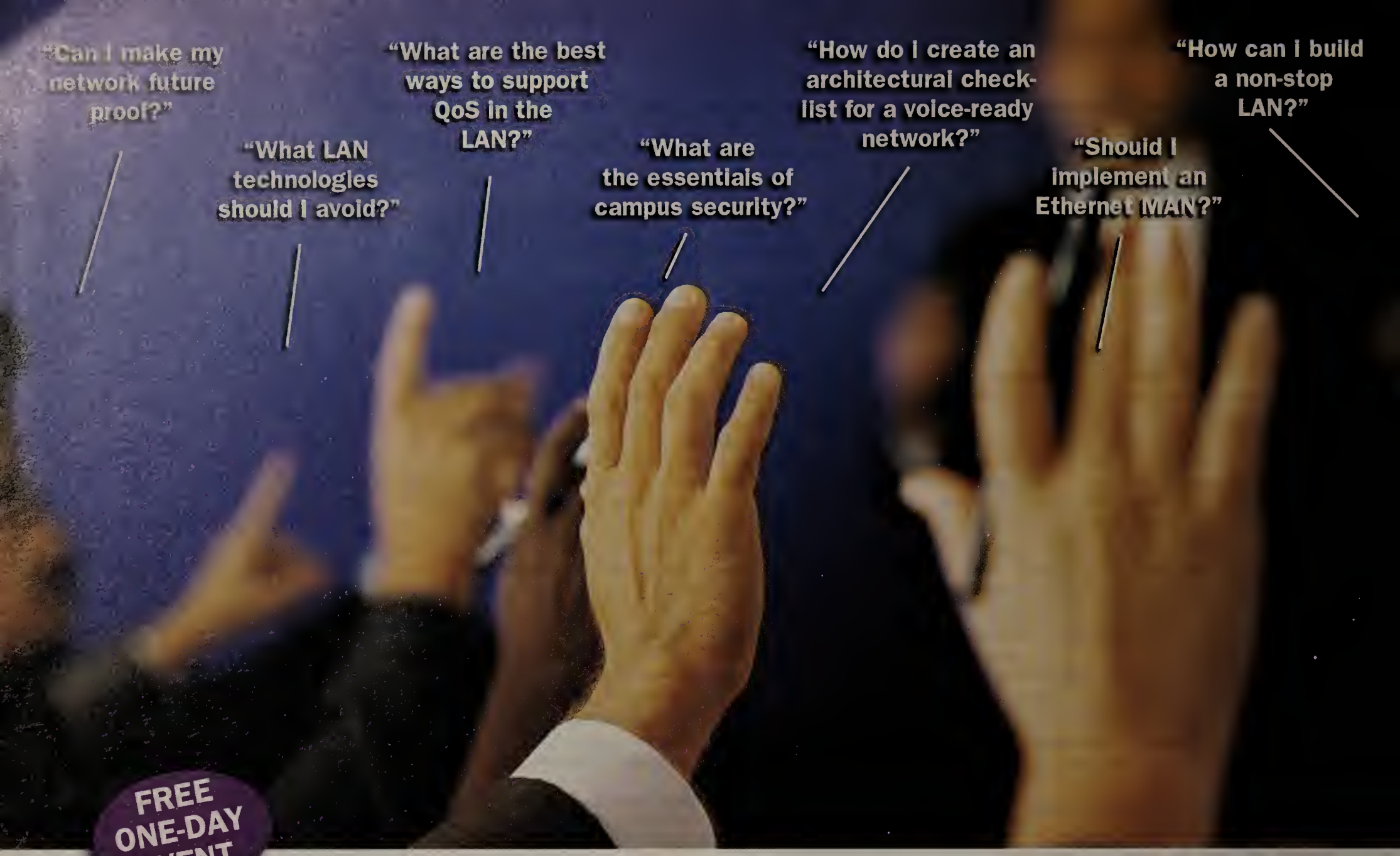
Overpriced mergers were being done because every equipment vendor didn't want to be holding a deficient technology card hand and felt that even a six-month delay would be devastating. Furthermore, because the mergers were done for mostly stock, every time a merger was announced the stock price of the acquiring company went up, making the acquisition essentially free. Cisco, with its 42 mergers during the past two years, was the poster child for the rest of the industry. The European vendors then felt they had to get into the game or forever be sucking wind — so in came Siemens, Alcatel and Marconi, overpaying with abandon.

But there were only a dozen or so real customers (that is, Verizon, AT&T, Telefonica, Williams, Sprint and Cingular) and only a half-dozen major suppliers (Lucent, Alcatel, Nokia, Cisco, JDS Uniface and ADC). If the major carriers slowed their purchasing, the suppliers no longer could grow at 40% per year. When the growth stops, so stops Juniper, Sycamore, Sonus, Copper Mountain and everyone else.

Companies used to spend 2.5% to 3% of their revenue on computing and communications. That number is now 8%. Carriers used to spend 10% of their revenue on next-generation technology; it's been running 22% for the past five years. There are whole warehouses of technology that haven't even been taken out of the box. We have built in so much extra capacity that we are now faced with a glut — and a glut means bulk pricing and commodity status.

Eventually we will put all this to use, but we should be searching for some common enemy we can all fight. We should find this enemy soon. After all, Y3K is still 999 years away.

Anderson is senior managing director of Yankeetek Ventures, a Cambridge, Mass., venture capital firm. He is also founder of The Yankee Group and the William Porter Distinguished Lecturer at the Massachusetts Institute of Technology. He can be reached at handerson@yankeetek.com.



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FACE-OFF

What's the best way to handle QoS over multiservice networks?

At the desktop or on the network? Vendors argue the merits of two QoS approaches.

AT THE DESKTOP

BY LYNN NYE

Quality of service seems to be a widely used but poorly understood term. However, ensuring that business applications and critical users get priority use of constrained resources is an easily understood necessity. The only way to really meet this requirement is to control applications and users right at the desktop. The alternative, trying to control traffic after it is out on the network, is like trying to herd cats. Once packets are released onto the network, the only management options available are queuing, delaying or dumping.

For years, companies have tried to ensure application delivery by overprovisioning network and server resources. But you can't continue to spend money on upgrades without some justification to the CFO. Ultimately, you must build a business model that says, "This application drives X dollars of revenue, so we can justify spending Y dollars to deliver the application." Overprovisioning fails to address this basic fact of life.

If companies try instead to ensure delivery using intervening network devices, they run into capacity and capability issues. When every packet must receive individual treatment at a box, the box becomes a bottleneck as traffic loads increase. In addition, a physical box can't control every kind of network.

Controlling applications at the desktop gives you a solid head start in ensuring profitable application delivery. With a desktop system, agents enforce policy at the session layer (Layer 5) of the Open Systems Interconnection model, prioritizing traffic above the network and encryption protocols. You're no longer limited to specific topologies or particular applications. This session-layer approach controls TCP and User Datagram Protocol (UDP) traffic, and networks as diverse as frame relay, broadband, wireless and dial-up. Simple policies based on users and applications, instead of complex packet rules, let anyone easily specify the application priorities appropriate for their environment. Finally, because prioritization occurs at each desktop instead of a centralized box, the delivery system scales easily as the network grows.

For example, a distributed enterprise customer recently built a frame relay network to support more than 10,000 branch-office sites. After browser-based applications were added, demand for bandwidth exceeded network capacity. Management had to choose between a desktop-based delivery system and upgrading the entire network. The network upgrade would have taken two years and cost more than $100 million. Desktop delivery software could be rolled out at a fraction of the cost and the project completed within three months. The answer was very clear — do it on the desktop.

Most net managers find a simple software system more attractive than wrestling with packets inside the network. So before you stake your business on net-based approaches, evaluate the desktop approach. You'll be glad you did.

Nye is CEO and founder of Centricity Software, which provides software products for the differentiation and control of applications and services. He can be reached at lynn@centricitysoftware.com.

ON THE 'NET

BY TODD KRAUTKREMER

The explosion in users, traffic, applications and services has increased interest in quality-of-service appliances. The question now is not whether companies should deploy QoS technology, but where: on the network or at the desktop.

The most critical performance flashpoint is at WAN edge, where high-speed LANs meet the significantly slower WAN local loop. This is where bandwidth contention and congestion-induced latency impair application performance. On-network QoS appliances sit on the LAN behind the remote WAN router — right in the packet path — and can see and control all traffic that converges between the high-speed LAN and low-speed WAN. QoS is an all-or-nothing proposition — if you cannot control all the traffic that shares a constrained WAN link, you effectively have no control at all. One uncontrolled traffic source can burst and overrun all the other traffic. A Windows-based desktop QoS platform can see and control all traffic flowing to and from its hosting PC, but it can neither see nor control traffic from unsupported servers or devices, such as Linux servers, cache appliances or remote printers.

On-network appliances utilizing TCP Rate Control technology can flow-control traffic bidirectionally from the transmission source by negotiating start-up packet and window sizes and dynamically controlling window rotations. Using TCP Rate Control, these devices prevent congestion at the LAN/WAN boundary by rate controlling each flow so there is never more traffic than available bandwidth. They also ensure that optimal packet and window size is selected for a given bandwidth policy. Because desktop QoS appliances use a proprietary Windows API between the client application and TCP/IP stack, policy overruns can easily occur, since the devices cannot control packet or window sizes. For example, a 24K bit/sec per flow bandwidth policy can be consumed with the transmission of two 1,500-byte packets, causing the third packet to overrun the bandwidth allotment. Moreover, remote desktop QoS can only control outbound traffic. To control inbound traffic the software must be installed on each application server accessed by the remote office — a nearly impossible feat.

An argument often made for desktop QoS is that VPN encryption can blind on-network platforms, making deep traffic classification impossible. However, most of today's remote-site VPN implementations are deployed at the WAN edge to reduce the number of VPN endpoints and central-site tunnel terminations. At the WAN edge, VPN routers are the platform of choice, making the LAN-side approach a perfect traffic-management complement.

The need for application-level QoS over shared IP WANs is a given. The only question is what technology to use and where to deploy it. On-network appliances deliver a comprehensive and effective answer right at the congestion flashpoint — the LAN/WAN boundary.

Krautkremer is vice president of marketing for Packeteer, a provider of Internet application performance infrastructure systems in Cupertino, Calif. He can be reached at todd@packeteer.com.

www.nwfusion.com

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Lockdown

Network management tools can lock down desktops, but you need to weigh the business benefits.

BY TED SMALLEY BOWEN

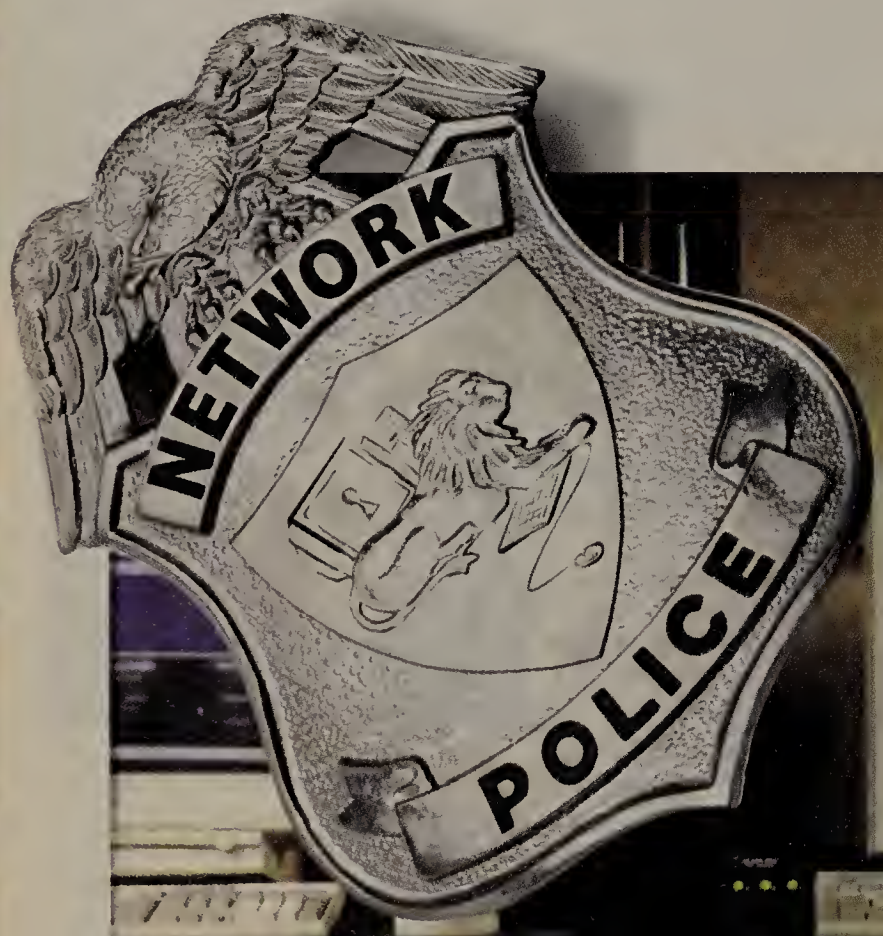
Your neighborhood United Parcel Service driver, while quite possibly a good mechanic, isn't likely to be found at the local auto parts store searching for the latest in shocks, oil filters and nifty racing decals to jazz up that functional but drab delivery van.

Nor is your average UPS computer user expected to tinker with that standard-issue desktop or notebook.

"We don't want them to be able to change the workstation," says Glen Barry, a systems analyst and technical manager at UPS in Mahwah, N.J.

The term "lockdown" is a bit harsh for an industry that thrives on positive and encouraging messages, but it fits the bill.

"You have to be able to protect yourself against malicious, curious or clumsy users, who will go out and do all kinds of nasty things to the machine you've provided them with," says Steve Kleynhans, an analyst with Meta Group.



"When I first got here, we had it totally locked down. Well, you had a bunch of unhappy people," says Harry Butler, manager of support operations at EFW in Fort Worth, Texas.

DAN SELLERS

DOWN

It's not clear how many corporate IT shops rely on actual lockdown programs. About 60% of organizations say they have some form of technical lockdown in place, but Kleynhans puts the real figure below 50%.

"I have a feeling a lot more people say they're using lockdowns than actually are," Kleynhans says. "In many cases, they just say 'Don't make changes to you machine,' as opposed to having a formal facility that actually prevents them from doing it."

It's a lock

Lockdown tools use access policies or security levels that hamstring users' ability to make changes to their systems or access unauthorized resources (see story, next page).

One of the more common, if minimal, forms of lockdown is simply denying end users administrative privileges, which prevents them from making major changes. It closes off access to the system registry and prevents users from taking actions such as selecting printers, and otherwise changing the configuration.

In some cases, an administrator might use an asset management package to set the license volume to zero for unauthorized applications that are known to circulate among users, a measure that prevents those applications from running.

Other measures include denying access to certain applications, based on job function or other grouping, or assigning an operating systems' administrative privileges to the IT department and not the end user, and otherwise opting for strict operating system security settings.

The lock as business tool

For most companies, the question is not whether it's technically possible to lock down user desktops, but whether there's a compelling business reason to do so.

"Why would you be wanting to lock down? Is it because people are using corporate assets for noncorporate reasons? Is it that in doing so they're exposing the company to risk? Is it lost productivity? Is it that the employees, through their own simple and well-intentioned, hard-working stupidity keep scrambling these great big fat PCs so that they crash and they lose productivity? Is it a TCO issue?" asks Valerie O'Connell, an analyst with market research firm Aberdeen Group.

"The technology is there to manage any business decision you might come up with," she says.

Given the range of options, IT managers need to balance the need for security and control with employee morale and productivity.

"Some people lock it down to the point that you can't change screen colors, you can't change the fonts and you can't put backgrounds on there. We're not into that," says Harry Butler, manager of support operations at EFW, a military contractor in Fort Worth, Texas.

"We looked at the things that we could lock down, and then determined if there really was a business need. It's kind of an employee thing. Do you want them to feel like they're part of it, or are they just robots coming to work? It's a company PC, but it's what they use every day," he says.

"So rather than making them come into an environment where they have no control whatsoever, by freeing up those things like screen color and screen savers, it makes it a little more user-friendly. When I first got here, we had it totally locked down. Well, you had a bunch of unhappy people," he says.

EFW uses Computer Associates' UniCenter TNG suite, including its AMO asset management option to manage more than 700 workstations in multiple offices and nearly 200 laptops. AMO provides central administration capabilities that can be used to restrict end-user access to some workstation functions.

At EFW, asset management is the hub, and system locking is one spoke. "I'm more worried about what software is installed on the box. If the IT department puts it on there, then I've run it through a test environment, we know what it's supposed to do, we know that you're supposed to have it on there, and then we authorize it for use throughout the enterprise," he says. "If someone brings in his own CD with Microsoft Golf, I get notified that it's been installed, and then we also set it up so that it deletes it."

Controlled delivery

UPS has a fairly centralized systems architecture, with tightly controlled host applications in the New Jersey and Atlanta data centers.

Those are integrated with servers in the parcel delivery giant's package operations centers, which are tied to workstations — mostly Pentium-based PCs running Windows NT or 95.

"Some people lock it down to the point that you can't change screen colors, you can't change the fonts and you can't put backgrounds on there. We're not into that."

– Harry Butler, EFW

Barry's group manages about 15,000 workstations, most running at least Win 95 or NT, antivirus software, Office 97, NT resource kit, Internet Explorer UPS application and a systems management agent.

UPS uses Tivoli User administration and Tivoli Security to manage user access for NT servers and workstations, and only authorized support personnel have administrative rights to the systems.

UPS closely monitors the contents of each workstation, regularly checking it against the list of authorized applications and reporting the discrepancies, Barry explains.

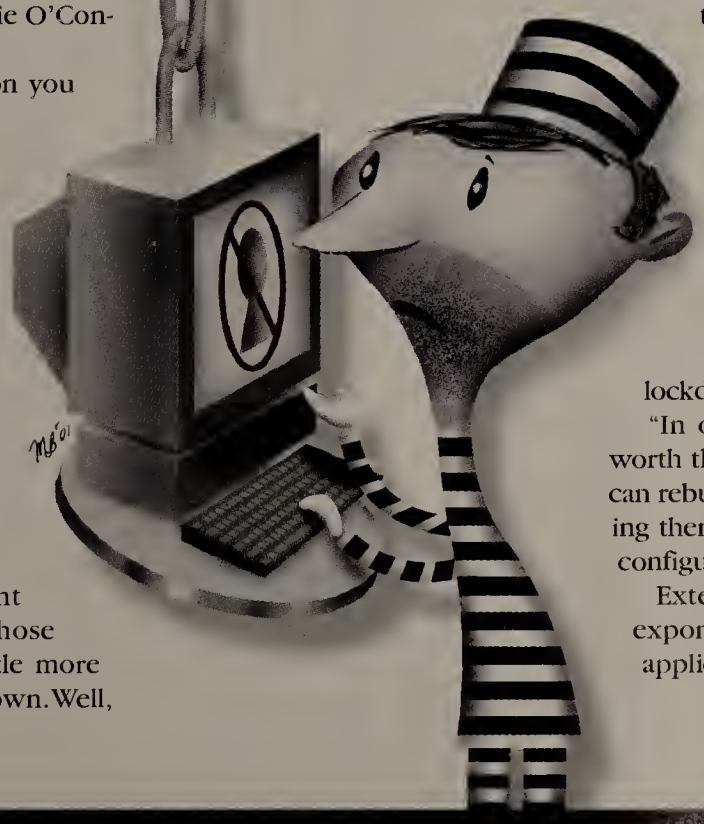
"Support cost was one reason. UPS also wanted to centrally manage the devices from an administrative perspective. We wanted a uniform security policy, and we wanted to take an inventory of each device," he says.

But UPS hasn't employed elaborate lockdown measures on every workstation.

"In our case [extensive locking] is not worth the effort at the workstation level. We can rebuild workstations fairly easily [by wiping them clean and reinstalling the standard configuration]," he says.

Extensive locking is reserved for the exponentially more complex and critical application servers.

Continued on page 46



ILLUSTRATIONS MICHELLE BARBERA

Hardware crashes are a reality.

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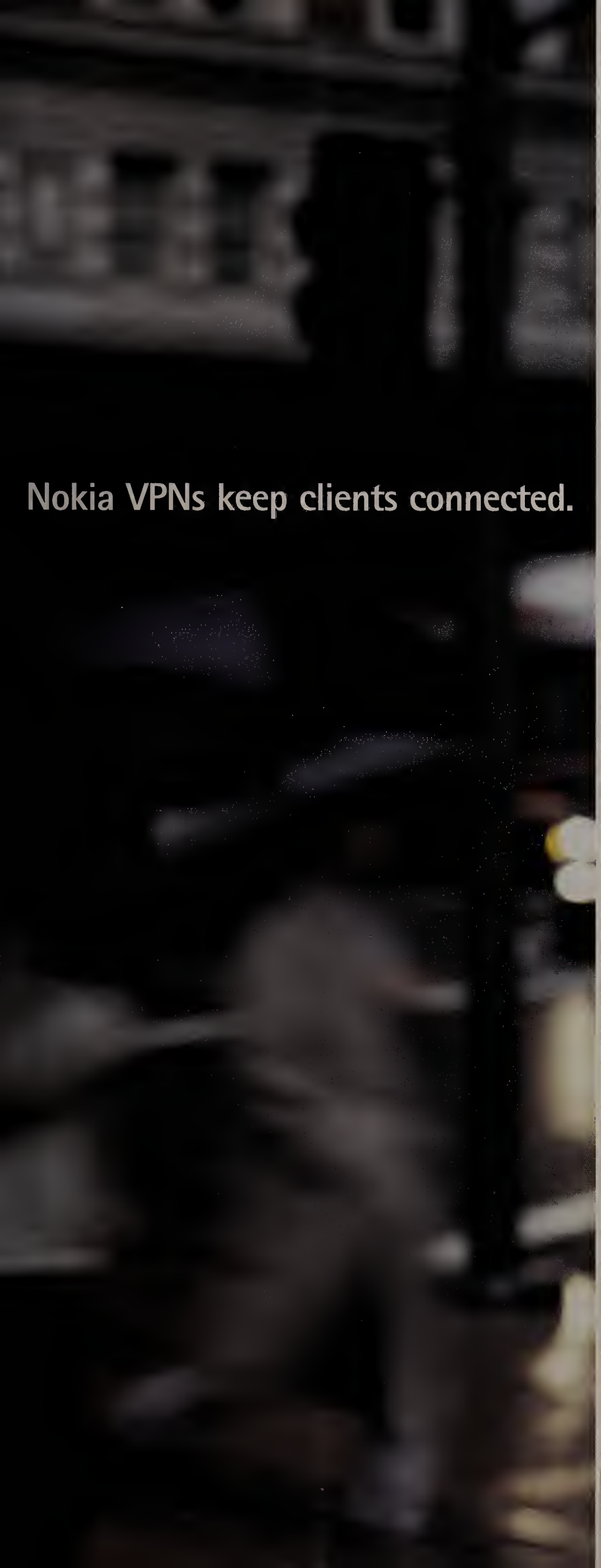

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NOKIA

CONNECTING PEOPLE

Continued from page 43

"We were running into high costs and high time to resolve [inconsistencies and other server problems], so we made a decision that any new application that was rolled out would be locked down," he says. "It was a big effort [maintaining the servers] when environmentals changed."

Some applications, such as call center programs, might warrant more serious workstation-level locking, he adds.

"We're looking at certain critical applications to fit into the mold of having that requirement. The question is what's the impact [of unauthorized changes vs. the cost and effort of locking down the systems]," he says.

If it can't be bolted down . . .

Other configuration issues arise in dealing with telecommuters and people who bring laptops home after hours, situations that can blur the lines between work use and personal use.

"I have road warriors, and they're locked down just like every desktop in the building is. And when a road warrior goes out and works detached from the network and installs a piece of software, it will work until they plug back into the network," EFW's Butler says. "The asset management software goes over the hardware and software configuration, and [if it finds] any changes we're notified, and it shuts down that software automatically."

Lock, locker, lockest

Lockdowns are not binary, but can be implemented by degrees. "Mild lockdowns are generally ineffective, [whereas] Draconian lockdowns can have serious impacts on users' ability to do anything. Companies have to find a balance somewhere in the middle," Kleynhans says.

Most organizations that lock down desktop systems do so for about 60% of the user population, according to Meta.

"There are certain very task-focused workers and certain worker groups that, for whatever reasons, tend to have more problems than other groups, or they feel don't need flexibility," he says.

Effectiveness, and even return on investment can be hard to judge, but focused lockdowns can work, Kleynhans says.

"I'd say it's reasonably successful. Most companies that do a lockdown find that the user population is more accepting of it than they expected them to be, and isn't out there trying to figure out ways to break the lock," he says.

To make a lockdown scheme work, IT organizations need to present clear choices to users and department managers.

"You have to offer them something that makes it attractive — or something that makes the alternative unattractive — which usually means service-level agreements, or discounts or premiums on monthly charge backs for support," he says.

On the cost side, standardization in general can save money. In some cases, lockdowns can help enforce those standards.

"But you have to balance that against how much effort it takes to make the standards fly," he says.

"We locked down the president of the corporation. His desktop is no different from anyone else's desktop." – Harry Butler, EFW

'Who says?'

The touchy subject of enforcing lockdowns among senior management underscores the need to get approval from the top.

"We locked down the president of the corporation. His desktop is no different than anybody else's desktop," EFW's Butler says. "Once we convinced him and showed him how it would wind up saving us money in support costs by locking down systems, then I had no problems."

"Once you get that upper management buy-in, all the rest of it's downhill," he says.

However, not all outfits show the same degree of esprit de corps.

"I talked to one firm where the CFO was adamant that he was not going to have his system or the systems of his senior managers locked down, no matter what. It does become somewhat of a political football," Kleynhans says.

Defining computing needs for your staff can mean jousting with a certain sense of entitlement throughout the ranks, according to O'Connell. But, "I would maintain that people are more demoralized by down-time than they are by any known, inherent limitations in their [systems privileges]," she says.

Which doors to lock?

If you decide to lock down desktops, the first step is to analyze the workforce, draw up categories and create a formal methodology for getting the appropriate systems images out to users.

"Most large organizations have a pretty good handle on that. Probably 85% to 90% of large corporations will tell you that they have some formal process for creating a standardized image build, a core build that includes all the broad things that everybody needs," Kleynhans says.

"Where it starts to fall apart for a lot of them is where you have users who have unusual needs. A lot of organizations can end up with an awful lot of small groups of users, and the process of managing the differences among these small groups can become overwhelming," he says.

Although measuring the effects such tactics have on productivity and operating costs can be daunting, some ready indicators suggest themselves.

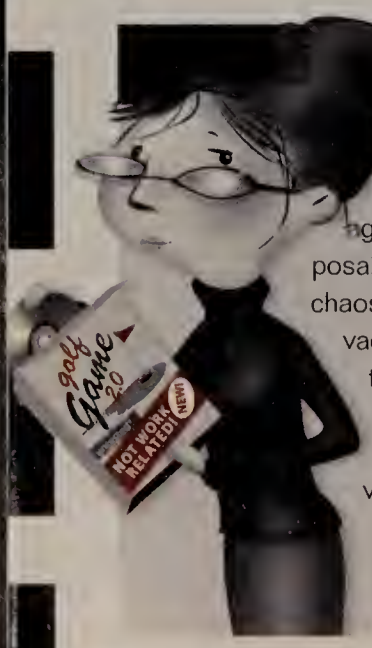
"Characterize the calls to the help desk — the ones for [Dynamic Link Library] hell, trashed registry settings, and stuff like that which would be controlled by having desktops locked down, and there's your savings," O'Connell says.

Yet, while locking down systems may seem to offer a surefire way to cut expenses, organizations need to weigh the cost of implementation and other factors.

"Control itself adds costs, so you have to take a look at the benefits and what you're trying to achieve. Just like anything else, do a cost-benefit analysis," O'Connell says.

Bowen is a freelance writer. He can be reached at tbowen@trnmag.com.

LOCK & KEY



Among the tools managers have at their disposal for limiting the chaos that typically pervades end-user systems is a class of applications designed to prevent changes to desktop and mobile computers.

Some, such as Novell's ZENworks, provide central administration and software distribution capabilities, with the ability to assign settings and parameters on individual desktop systems based on users' roles and requirements.

Computer Associates' UniCenter TNG AMO (asset management option) and the smaller-scale AimIT let managers inventory and monitor system configurations and optionally enforce policies by restricting users' ability to make changes.

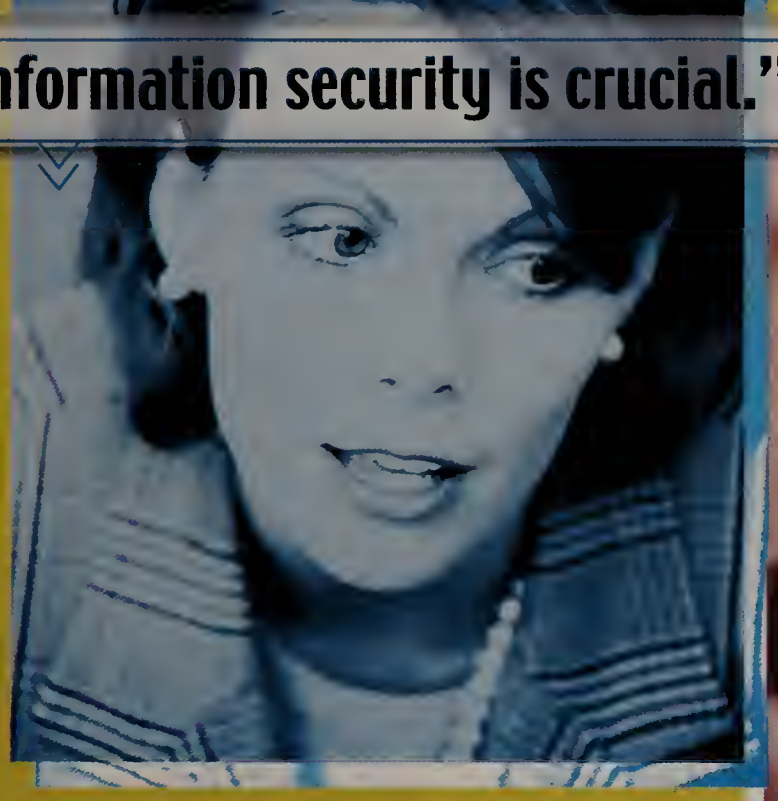
In addition, the Active Directory service of Windows 2000 is touted as supporting fine-grained application distribution and roles-based systems management.

Lockdown programs generally let managers secure desktop configuration files and prevent unauthorized changes and additions of applications, alteration of system files, and the like.

Centrally administering end-user systems, not only monitoring them and distributing software to them, but also changing system settings, such as registry information and network addresses, is critical, according to observers.

AimIT has a script generator for setting and enforcing standard desktop configurations by group or application.

Many of the monitoring and lockdown applications are options within broader infrastructure management tool sets or add-on programs for them.



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May 22	**San Francisco, CA** Hyatt Regency, Embarcadero
May 23	**Los Angeles, CA** LA Marriott, Downtown
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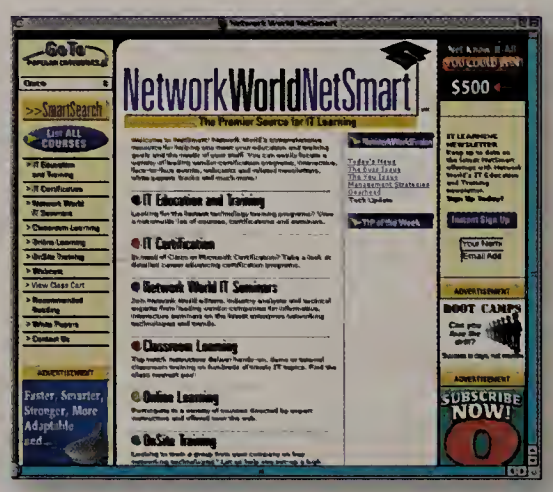

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Top ISP REPORT

HERE'S THE LATEST ROUND of numbers of our ISP report, a joint venture of *Network World* and Visual Networks (www.visualnetworks.com). The chart at right shows you the top dial-up ISPs in the market, and how they performed in eight metrics, as determined by Visual's Internet BenchMark data. We analyzed 25 ISPs (check out Network World Fusion for the list); if your ISP isn't listed among the top performers, ask them why they're not performing as well as their competitors.

Top ISPs profile, March 2001

Network World Analysis

National retail

AT&T WorldNet Still the top of the class, but others have chipped away in some categories.

Regional retail

Ameritech Bounces back to the top after a few average months. However, the top ISPs differ depending on category tested, so examine categories closely.

Business-to-business

AT&T (GNS) and **Genuity** Both ISPs are tops in one category each, above average in seven categories each. Too close to name a winner this month.

How We Did It

Our data comes from Visual Networks through its Internet BenchMark service. *Network World* takes the data and applies statistical analysis to rate the relative performance of each ISP compared to other ISPs within the same classification (national, regional or business-to-business ISP).

Based on that analysis, we rank the top ISPs for the month. The chart lists the top three ISPs that perform above the average for the metric listed within their classification.

More information on our analysis can be found on our Web site at www.nwfusion.com, DocFinder: 4029.

Top performing ISPs (March 2001)*

	National ISPs	Regional ISPs	B2B ISPs
Initial modem speed Measurement of the negotiated connection speed to your ISP once the call has successully gone through.	AT&T EarthLink CompuServe	BellSouth Qwest Ameritech	AT&T (GNS) UUNET (Gridnet) UUNET
Average for market:	47.86K bit/sec	47.74K bit/sec	47.51K bit/sec
Average time to log on Reflects the time taken to connect and authenticate to a provider network access server once the modem takes the line off-hook.	AT&T EarthLink Verizon-West	Verizon-North Ameritech RCN	UUNET (GridNet) Genuity AT&T (GNS)
Average for market:	32.62 seconds	31.45 seconds	29.71 seconds
Average download time The time taken for the complete Web page to download, including all page content. Calculated by measuring the time from the first HTTP TCP packet being sent to the server until the last HTTP TCP connection has terminated.	AOL CompuServe AT&T	PacBell Qwest BellSouth	XO McLeod USA NaviPath
Average for market:	25.86 seconds	25.96 seconds	27.86 seconds
Average DNS lookup The time from sending the first Domain Name System query until a successful response is received from any query. This reflects actual end-user perception of the DNS resolution time, including retries.	Verizon-West Prodigy AOL	Ameritech RCN BellSouth	McLeod USA Genuity XO
Average for market:	874.80 msec	608.74 msec	860.34 msec
Average Web throughput The effective transfer rate of the connection. The average of these Web throughput measurements is presented in the reports. Throughput does not necessarily reflect the actual bandwidth of the connection, but rather the effective Web throughput experienced using a connection.	AT&T Verizon-West Prodigy	PacBell Qwest BellSouth	XO McLeod USA Genuity
Average for market:	4.64K byte/sec	4.78K byte/sec	4.75K byte/sec
Evening-hour call failure rate How often a modem call to the provider gets through successfully during the evening hours. A failure would include a busy signal, ring no answer, modem problem or logon failure. The lower the CFR percentage, the better.	AT&T EarthLink MSN	SBIS Ameritech RCN/Verizon-South	McLeod USA AT&T (GNS) Genuity
Average for market:	4.5%	4.2%	3.5%
Business-hour call failure rate How often a modem call to the provider gets through successfully during weekday business hours. A failure would include a busy signal, ring no answer, modem problem or logon failure. The lower the CFR percentage, the better.	AT&T Verizon-West EarthLink	Qwest SBIS Verizon-South	Genuity McLeod USA UUNET
Average for market:	3.5%	3.2%	3.2%
Average total Web fail/timeout Any error message that appears as a dialog box for the Internet Explorer browser is considered a Web page failure. Any download that takes longer than 4 minutes to complete is canceled and considered a Web page timeout. A low percentage is considered better.	Prodigy Verizon-West AT&T	Bell South Verizon-North Pac Bell/Qwest	McLeod USA NaviPath AT&T (GNS)/PSI
Average for market:	0.9%	1.3%	2.1%

*** We list the top three ISPs in each category; a complete list of the ISPs that outperform the average appears on NW Fusion, DocFinder 4030**

DSL DEPLOYMENT

Yes, DSL is a good deal, but it may also bring you headaches when it comes to ordering the service and getting it installed. How long can you wait?

BY KEVIN DUNETZ

DSL gives smaller companies a good alternative to the expense of T-1 or frame relay lines and the lagging speed of 56K bit/sec modems for accessing the Internet and linking remote users to corporate networks. With rates as low as $39.95 per month, DSL is quite attractive. However, you need to be prepared to pay the price of time and frustration that generally accompany the DSL installation process.

While DSL deployment is growing, the industry still faces coverage problems in certain areas and an inability to keep up with demand. Before you rush into ordering the service, consider some of the drawbacks:

- Lack of ubiquity. This is primarily an issue for large companies that need to deploy DSL on a regional or national basis. DSL is generally available in metropolitan areas, but if your office or home is in a rural area, you probably won't be able to get DSL. Other high-speed technologies, such as T-1 and ISDN, are more readily accessible in almost any part of the country.
- Long installation time frame. Carriers can install an ISDN or T-1 line within three to four weeks, but DSL users are in for waits of about three to four months (if you get service sooner, consider yourself lucky).

Thanks to overwhelming demand and lingering technical difficulties, prepare yourself for a protracted experience. Without a safety net, you risk getting burned.

- Market instability. Many ISPs and competitive local exchange carriers (CLEC) such as Flashcom and NorthPoint have gone belly up and suddenly shut off DSL service, leaving their customers scrambling to find replacements. Eager to grab market share, some DSL providers have offered their service for less than it costs to deploy and operate, which can lead to service problems down the line.

A smorgasbord of DSL flavors

Here's a sample of prices for various types of DSL service from popular carriers and service providers. These prices don't include one-time service charges or equipment.

DSL type	Downstream speed	Monthly cost
Asymmetric DSL	384K to 1.5M bit/sec	$39.95 to $189.95
Rate-adaptive DSL	3M to 7M bit/sec	$205 to $800
ISDN DSL (IDSL)	128K bit/sec	$129 to $149
IDSL	144K bit/sec	$129 to $149
Symmetric DSL (SMDSL)	192K bit/sec	$129 to $149
SMDSL	384K bit/sec	$179 to $220
SMDSL	768K bit/sec	$259 to $299
SMDSL	1.1M bit/sec	$349 to $359
SMDSL	1.5M bit/sec	$379 to $399

SOURCE: TELCO EXCHANGE

Where to buy

In spite of the industry churn, you can still find DSL from a variety of firms, ranging from giant carriers to a local ISP or reseller. Although it seems like you're choosing a single provider, multiple companies need to work together to deliver service. The interaction between these parties is one reason for delay.

The first link is your regional Bell operating company, which owns the copper between your site and the central office. After you order a circuit, the RBOC needs to qualify the line to make sure it can handle a DSL signal. The next player is the CLEC, which maintains the DSL access equipment at the central office. The final link is the ISP, which delivers DSL along with other services.

You'll generally find several DSL flavors and packages to choose from. If you're seeking asymmetric DSL service, in which downstream speeds are faster than upstream, most RBOCs offer several speed and pricing plans. But if your needs go beyond one location for residential or business service, you may need to look to a national provider such as EarthLink, UUNET or XO Communications.

Avoid using multiple companies, DSL flavors and speeds in different parts of the country, as this makes it difficult to benchmark performance of mission-critical applications. The advantages of working with a nationwide company are consistency in price and speed as well as a single point of contact for billing and problem resolution.

Cost considerations

DSL is priced by connection speed. Monthly ADSL service from a national carrier usually hovers around the $40 to $50 range and is well-suited for home use. Symmetric DSL is preferred for business use and costs between $130 and $400 per month depending on speed. Options such as Web hosting, additional IP addresses, or additional e-mail boxes can add to the cost.

Each company involved in the delivery chain needs to make money. The RBOC charges the CLEC for leasing the copper, the CLEC charges the ISP for leasing its DSL ports, and the ISP passes the charges along to customers. The businesses are already working off razor-thin margins, so don't expect to see prices go much lower.

To get an idea of what you might pay, check the graphic to the left.

Shopping tips

- As with any service, don't purchase based on price alone.
- The provider offering a rock-bottom rate might not be around for long. Only buy from companies with stable business records.
- Negotiate a long-term contract if you like the price and the service. Some industry experts think prices may increase in the future as ISPs, RBOCs and CLECs try to profit from DSL.
- Count on a three- to four-month installation wait, no matter what the salesperson tells you.
- Have a contingency plan in case the DSL you ordered can't be installed. ISDN might make a good backup because it's moving to flat-rate pricing and you can count on getting it installed within one month.

Dunetz is CTO for Telco Exchange, an online marketplace for high-bandwidth communications services. He can be reached at kevin@telcoexchange.com.

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Testers Choice . David Newman

THE ALL-OPTICAL MYTH

Some day soon, a sales representative for a metropolitan- or wide-area service provider will pitch you on the benefits of its "all-optical" network. Show said sales rep the door, fast.

All-optical is a myth. It exists only in simple configurations where it can't support niceties such as redundancy and intelligent path selection.

Don't get me wrong — I've got nothing against optical networking. I'd love to test optical routing. But it looks like it may be a while before I have the chance.

The premise of all-optical networking is simple: Data will travel much faster because it will be encoded only as light.

"Only" is the key word. Optical equipment today accepts pulses of light from fiber cabling, converts the pulses to electrical signals for processing, and changes the signals back to light for transmission. Even if processing time were zero, this conversion would add delay.

Optical advocates say eliminating the conversion will push data rates into the terabit range. An oft-quoted statistic is that fiber has a theoretical capacity of 25 to 75 terabit/sec. Compare that with copper, for which data rates are usually measured in megabits.

But this argument doesn't address two fundamental requirements for all-optical networks: routing and buffering.

There is no such thing as a Layer 1 routing protocol. Optical devices operate today in point-to-point or ring topologies. Point-to-point means light pulses get from Box A to Box B or they don't. There's no backup in the event of a cable cut. Ring technologies like SONET's automatic protection switching offer a bit more redundancy: In the event of a cable cut, a ring can wrap around itself.

Any more-complex topology requires routing. Imagine a network with nodes in Boston, Miami and San Diego. If I present a packet to the Boston node with a destination of Miami, how does that node know to send the packet directly, instead of the long way around? If the Boston-Miami link goes down, how does the Miami node know it can still reach San Diego? The answer is routing. And it doesn't exist at Layer 1, at least not yet.

Some optical advocates say routing decisions belong at the edges of the optical network. That's true, as long as all-optical networks remain small and simple. If switch makers are serious about increasing sales, they'll need more intelligence in their boxes.

The other major roadblock to all-optical networks is figuring out a way to buffer light. No optical device can slow or store light, the way electrical devices buffer packets.

This makes all-optical devices impractical anywhere congestion exists. Imagine an optical switch on which two light pulses arrive at the same instant, bound for the same destination output interface. The switch will simply discard one of the pulses.

This may change. In January, two research groups published papers indicating they'd found ways to slow and even store light. Impressive stuff, but the leader of one of the groups estimated it would be 10 to 50 years before the research would be put to practical use.

Optical devices already play an important role. But until the industry addresses some key challenges, all-optical remains a neat idea but a dubious sales pitch.

Newman is president of Network Test in Hoboken, N.J., an independent benchmarking and network design consultancy.

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Pack your bags, you're going to Vegas. But this trip is about more than visiting the gambling capital of the U.S. You're going to NetWorld+Interop, joining an estimated 65,000 network professionals, 800 technology exhibitors and everyone who's anyone in the networked world. Industry veterans from top companies will share their experiences in several keynote addresses. And you'll have your choice of more than 70 conferences, tutorials and workshops packed into just a few days. So be sure to take this N+I show planner to help you navigate the network industry's premiere event.

Picks of the Day

VPN Day 1 & 2

Monday, May 7, and Tuesday, May 8
All day

With a growing number of remote and mobile users, enterprise companies must consider VPNs as a cost-effective way to secure their networks.

Today's economy demands any competitive business use this technology for LAN-to-LAN communications, intranets and public Internet services. David Piscitello, president of Core Competencies, joins Avolio Consulting Principal Frederick Avolio and Joel Snyder, senior partner of Opus One, to give attendees a comprehensive look at the technologies advancing the VPN market today.

This all-day seminar discusses everything from cryptography to Layer 3 Secure IP VPNs and demonstrates real-world VPN implementations with four case studies.

Once you're familiar with the basics of VPNs, you'll be ready to move on to VPN Day 2.

The second installation has the VPN experts discussing practical ways to address routing, security and gateway technology along with your VPN. The seminar also covers site-to-site VPNs and remote-access VPNs.

Managed services: Do MSPs make sense for you?

Tuesday, May 8
3:30 p.m. to 4:45 p.m.

Just about a year ago the management service provider market exploded with hundreds of companies claiming to have the answer to your management problems. MSP players offer management services in a variety of ways. Needless to say, the choices can be overwhelming for network professionals — many of whom consider MSPs competition to their internal IT departments. McConnell Associates President John McConnell looks to help you understand how you can work with an MSP. Some say MSPs help resolve IT staffing shortages while minimizing the risks associated with outsourcing parts or all your network management. McConnell invites several MSPs to spell out their approaches to delivering managed services. The idea is to help you decide which model best suits your needs. SilverBack Technologies President John Igoe joins McConnell to help you sort through the myriad offerings.

Highlights

Monday, May 7

MANAGING THE NEXT GENERATION OF OUTSOURCING

2 p.m. to 3 p.m.

What scares you about outsourcing? Loss of control? The financial viability of the outsourcing vendors? At this session *Network World* President and Editorial Director John Gallant leads a vendor and user panel on all things outsourced.

The panel includes Patricia Traynor, vice president of e-business solutions for AT&T; John Ridley, senior technical architect for Coca-Cola; John Igoe, president, Silverback Technologies; Traver Gruen-Kennedy, chairman, ASP Industry Consortium.

Tuesday, May 8

CONTENT DELIVERY NETWORKS

10:15 a.m. to 11:15 a.m.

Putting content closer to your consumers can be a challenge. This discussion, moderated by Greg Howard, principal analyst at HTRC Group, explores the options associated with content-rich services.

Howard welcomes Abdelsalem (Solom) Heddaya, InfoLibria CTO; Jim Ricotta, a senior director of marketing at Cisco; and Eric Wolford, a vice president at Inktomi, to discuss the pros and cons of a regional or an edge approach. Attend this session to learn which is best for your company.

QUALITY OF SERVICE FOR THE ENTERPRISE

10:15 a.m. to 11:15 a.m.

Unfortunately, there is no one-stop shop for enterprise quality of service.

Network professionals must choose from several technologies to find the right mix for their networks. Paul DeBeasi, vice president of marketing and product planning at IPHighway, leads this session and discusses combining bandwidth allocation, traffic prioritization, policing and rate shaping, and traffic engineering with policy management tools to meet service levels.

10-GIGABIT ETHERNET AND ITS IMPACT

2 p.m. to 3:15 p.m.

Vendors are responding to users' need for speed by introducing 10G Ethernet network interface cards and switches.

But are more speed and faster networks really needed? Or is the industry responding to an application issue? Jonathan Thatcher, IEEE chair and 10-Gigabit Ethernet Task Force principal engineer from Picolight, leads the discussion about networking in the fast lane.

Wednesday, May 9

THE DATA CENTER ECOSYSTEM

9 a.m. to 10 a.m.

Data center deployments add complexity to networks. Track Chairman and Coradiant CEO Alistair Croll discusses how users can keep overlapping products and confusing features from stalling their data center deployments. This session explores the various components of the data center, including, but not limited to, dealing with the WAN, content delivery, access, switching, Web, application, database and storage components.

ARE DIRECTORIES READY FOR PRIME TIME?

11:30 a.m. to 12:30 p.m.

A common theme at this year's show is making more out of what you already have. The Infrastructure Management track looks to help network professionals get the most from their existing tools and how to decide what new tools will provide a considerable return on investment. McConnell Associates President John McConnell chairs this session and invites Winston Bumpus, DMTF president and director of Open Technology Standards for Novell, to speak on directories. Joining Bumpus are Al Avaya, CEO of Avaya Systems; and Peter Houston, group product manager at Microsoft. The trio will examine the current state of directory-based management, including a close look at Lightweight Directory Access Protocol and Directory Enabled Networking. Attend this session if you are considering deploying directory-based management.

TRAFFIC MANAGEMENT SHOWDOWN

2 p.m. to 3:15 p.m.

To manage service performance, you must manage the traffic on your network. Today there are several options to manage this: network devices that use queuing, devices that manipulate TCP connection parameters or controlling bandwidth from the desktop. Packeteer's Vice President of Marketing Todd Krautkremer joins Track Chairman and McConnell Associates President John McConnell, Centricity Software CEO Lynn Nye and Allot Communications President Eric Rosser to weed through the many choices users currently face. The speakers discuss how VPNs and packet encryption may change the playing field and whether these strategies can be combined. You can choose sides as the experts debate the pros and cons to various approaches to traffic management.

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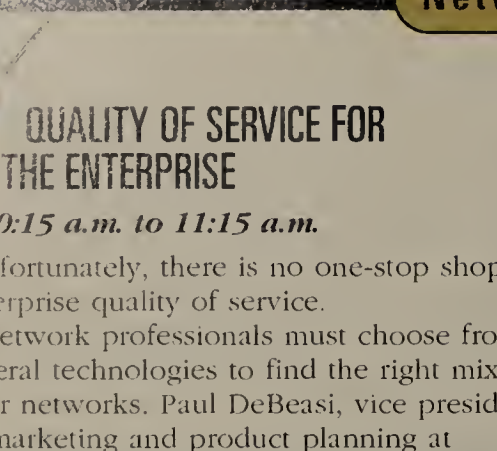

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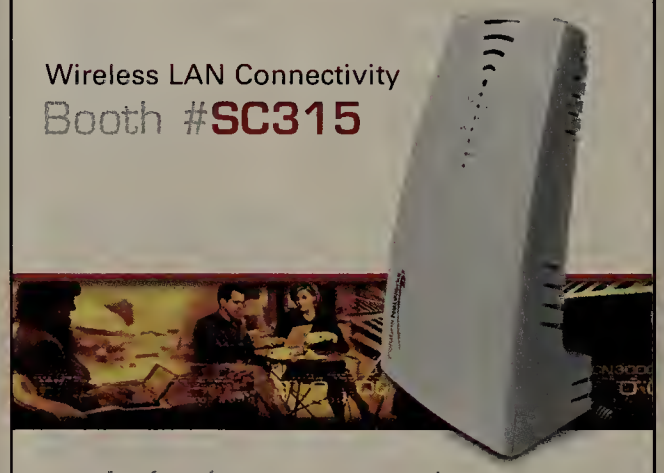

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INFRASTRUCTURE MANAGEMENT: ROOT-CAUSE ANALYSIS SHOWDOWN

3:30 p.m. to 4:45 pm

Network professionals know that finding the source of a problem is critical to network performance. Unfortunately, the first generation of network management tools designed to solve this problem proved difficult to configure and maintain.

Enterprise Management Associates' Dennis Drogseth has argued that root cause and topology are inherently linked, while Concord Communications CEO Jack Blaeser says the combination of the two isn't the answer. McConnell Associates President John McConnell welcomes Phil Tee, CTO of RiverSoft; and Shaula Yemini, CTO of System Management ARTS, to discuss the current situation.

The trio will discuss available tools and how they stack up against each other. Take advantage of this session to learn if there is a technology that can help you deliver better performance over your network.

THE BUSINESS LAYER OF IP

5:30 p.m. to 6:30 p.m.

IP is everything some say. We'll see.

In this session, *Network World* President and Editorial Director John Gallant presses some of the leading IP players for their future service and product plans.

Here you learn what IP technologies will shape the future of service and enterprise networks.

The panel, which convenes at the Las Vegas Hilton, includes Bobby Johnson, CEO of Foundry Networks; Robert Taylor, CEO of Focal Communications; David Tolwinski, CEO of Tenor Networks; and David House, CEO of Ailegro Networks.

Thursday, May 10

WIRELESS PANS AND WIRELESS LANS: COMPLEMENTARY OR COMPETITIVE?

10:15 a.m. to 11:15 a.m.

Yet another acronym — PANs, or personal-area networks, such as Bluetooth, are emerging.

How do they compare to wireless LANs? Bluetooth is the more popular technology in the press, but according to IEEE Chair Bob Heile and Track Chair and Farpoint Group Principal Craig Mathias, wireless LANs deliver higher performance and are way ahead of Bluetooth market penetration.

Listen and learn as these wireless experts discuss what each technology can offer.

PKI: THE FINAL FRONTIER

11:30 a.m. to 12:30 p.m.

John Pironti, senior Internet security consultant/senior Internet technologist at Genuity, talks about public-key infrastructure and whether it will meet expectations in 2001. Industry observers note the technology's problems in terms of cross-certification, Certificate Revocation List administration and ubiquitous interoperability.

Pironti looks at why users need PKI to make good on its promise, especially for e-business.

WIRELESS MIDDLEWARE: GETTING APPLICATIONS ON THE AIR

2 p.m. to 3:00 p.m.

A group of mobile computing industry players gather to discuss today's wide-area wireless networks and related performance issues.

They say wireless middleware may serve to fix those issues. Matthew Granger, Aether Systems' director of systems engineers; Don Grust, senior vice president of business development at Broadbeam; Prakash Iyer, Everypath CTO; and Farpoint Group Principal Craig Mathias explore the growing potential of roadband wireless networks.

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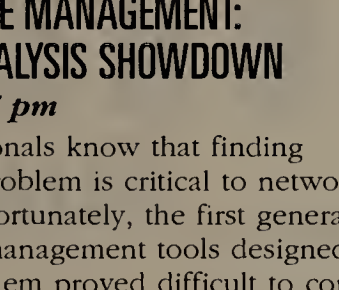

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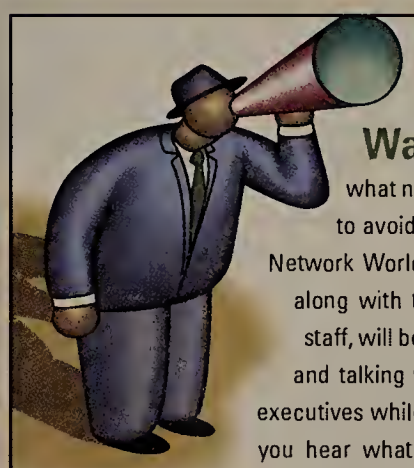

Want to know what not to miss, and what to avoid, at this year's N+I? Network World's Jason Meserve, along with the Network World staff, will be scouring the show and talking with noted industry executives while at N+I. Make sure you hear what Jason has to say about the show, what to seek out, the weird, the funky and the way cool, before you head over to the GWCC. And if you're not in Atlanta for the show, this is a great way to find out what it's all about.

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Management Strategies

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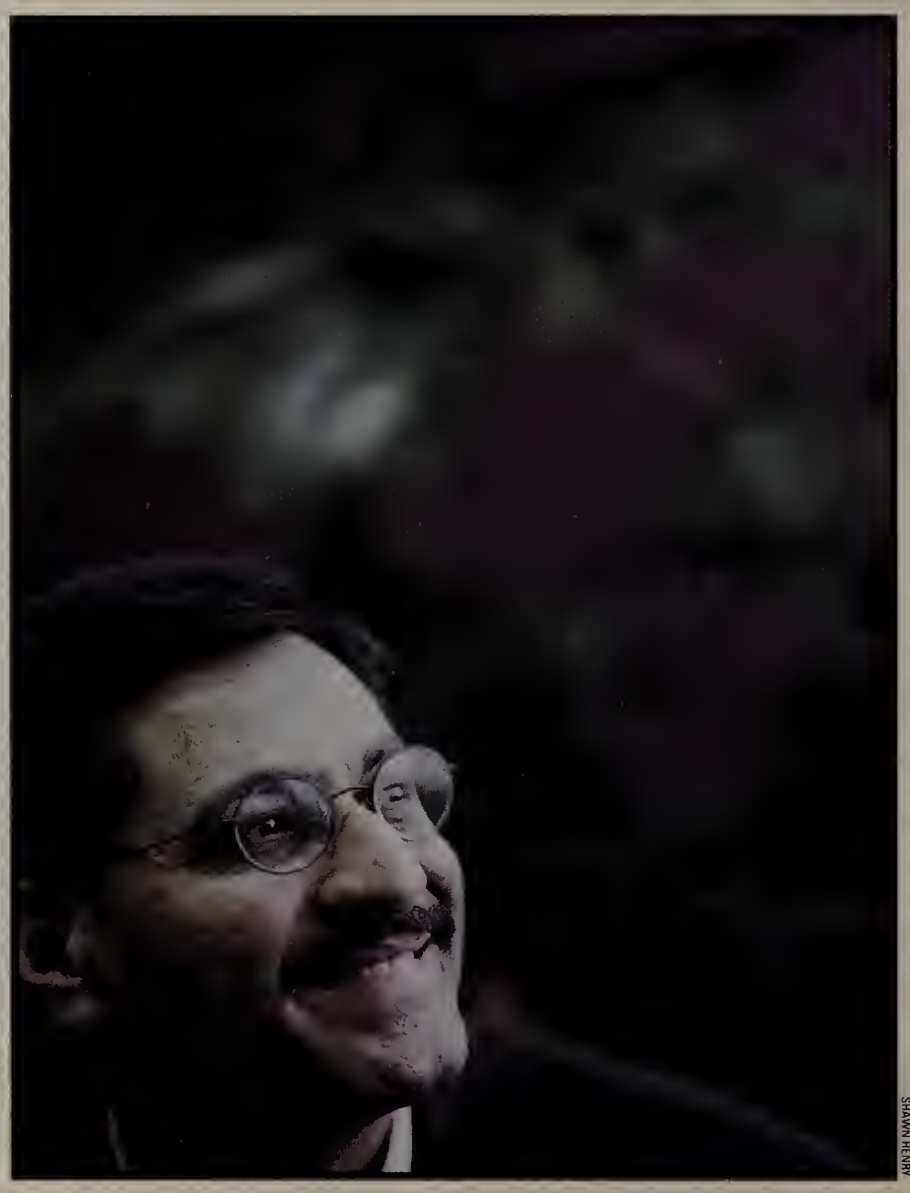
A CEO's strategies for success

Piyush Patel shares the management practices that have transformed Cabletron into four nimbler business units.

Editor's Note: Network World *asked Piyush Patel to describe his career path and share his management techniques. While this article focuses on engineers, his advice can be applied to any technical employee you manage.*

Patel, shown right, founded Yago Systems in 1996 and became senior vice president of engineering at Cabletron Systems when Cabletron acquired Yago in 1998. He became Cabletron's chairman and CEO in 1999. In 2000, Cabletron restructured by creating four subsidiaries — Aprisma Management Technologies, Enterasys Networks, Riverstone Networks and Global Network Technology Services.

BY PIYUSH PATEL



SHAWN HENRY

People say I'm determined, driven and demanding. I have to be, and I encourage all of my team to be just as driven. It's my entrepreneurial spirit, combined with my engineering background, that has helped me achieve business success. I don't mean to imply that we can't ever take a vacation, but I believe we need to always be on top of our customers' needs, our business deliverables and evolving market trends.

Today, in my role as CEO of Cabletron Systems, I am using my entrepreneurial drive and engineering experience to transform Cabletron from a single, large slow-growing company into a family of agile start-up companies focused on high-growth segments of the market.

My engineering skills are helpful in my job as CEO. For example, I use my ability to drill down to detail while keeping an eye on the big picture, to look for the root cause of a problem and to systematically solve that problem.

However, I've also learned a lot more about customers, partners, market trends and people along the way. Here are a few of the management techniques I've acquired:

• Foster creativity among your staff. While I began my career at Intel and Sun leading custom microprocessor teams, my real trial by fire was when I founded Yago Systems in 1996 and became an entrepreneur and a first-time CEO.

At Yago, I assumed many roles. I was CEO, engineer, receptionist and controller. During the day, I learned the switchboard. On the weekends, I learned accounting. I have a great deal of respect for every individual contributor in our company because I understand that each plays an integral role in ensuring our success.

However, I believe that fostering the creativity and passion of engineers is one of the most important lessons I have learned. When I first came to Cabletron, I knew that one of the challenges would be motivating our engineers.

To that end, I increased research and development activities and created teams focused solely on next-generation products. In addition, I implemented policy lowering and, in some cases eliminating, the cost of all caffeine products within the company. As a result, Cabletron was "abuzz" with energy and innovation.

• Reward commitment. Focused, motivated engineers make it possible for small start-up companies to defeat industry giants and develop products more quickly. It isn't enough just to hire talented engineers. To be successful, engineers need to have faith in their leadership, be excited about the products they're building and have good incentives.

If the parking lot is full early in the morning and late in the evening, I know it's because our people want to be there. Overall, we've made our employees more passionate about their work by bringing a sense of ownership into the equation. I believe in our employees and respect their commitment to their jobs. Because of this, our employees are rewarded for creativity and motivated to work harder. This has also given us a good platform for recruiting outside talent.

• Courage counts. Turn good, well-thought-out ideas into real business strategies, and then think of more good ideas.

In a competitive industry, the ability to execute is as fundamental to business as the ability to innovate is to engineering. I experienced that environment at Yago and was driven to recreate it at Cabletron. When I transformed the corporation into separate operating companies in 2000, I instilled in each the drive to stay ahead of the competition.

As innovation cycles shrink to three months, teams must quickly respond to the shifting needs of the market. I constantly challenge our engineers to not only conquer the task in front of them, but anticipate the one that lies ahead.

• Focus on the customer. If you don't have satisfied clients, you're not reaching your fullest business potential. The best way to achieve customer satisfaction is to know their needs and demonstrate that you can help them succeed.

Here at Cabletron, employees start the day knowing the customer comes first. Our engineers are required to visit with customers and listen to their business plans. Moreover, we have built a technology council and recruited leading IT executives to discuss their needs with both our executives and our engineering teams.

As CEO, I'm judged by my ability to execute, drive change and deliver results. During the course of a year, the practices outlined above have yielded significant benefits within Cabletron.

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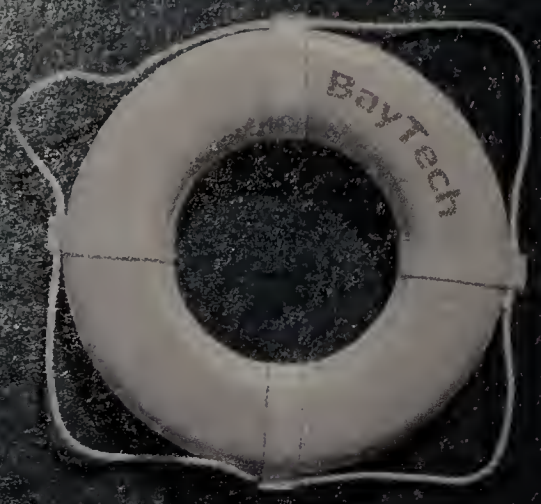

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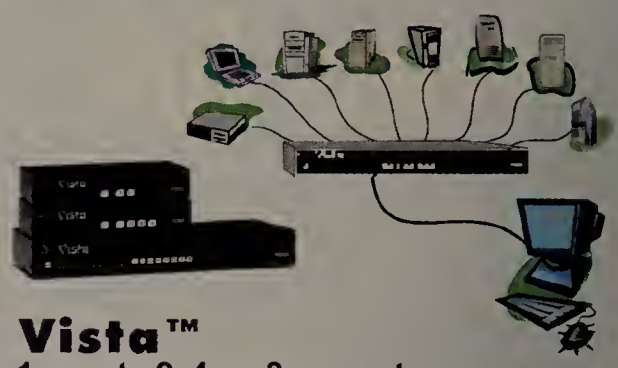

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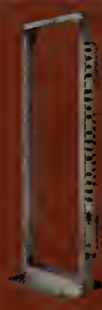

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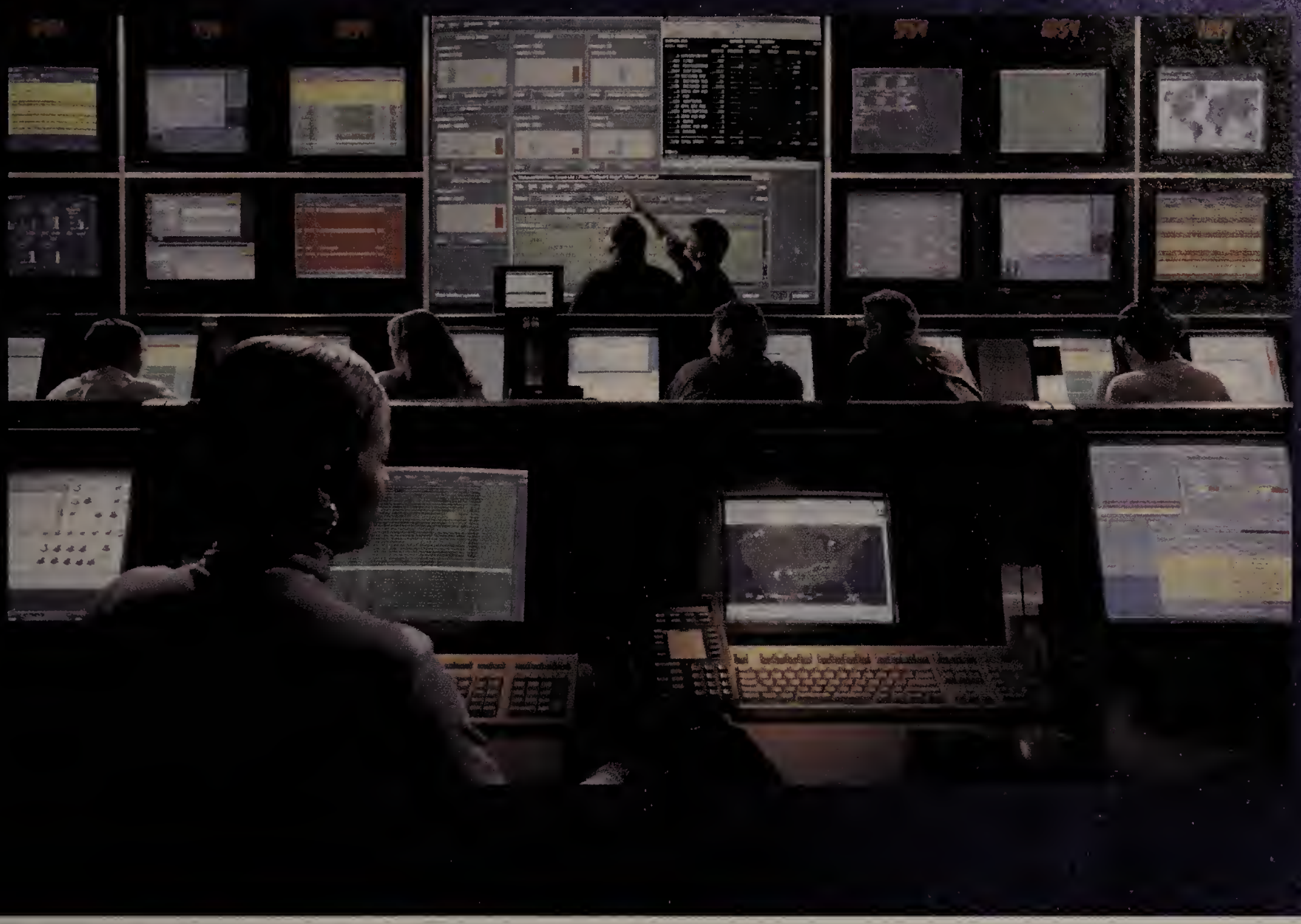

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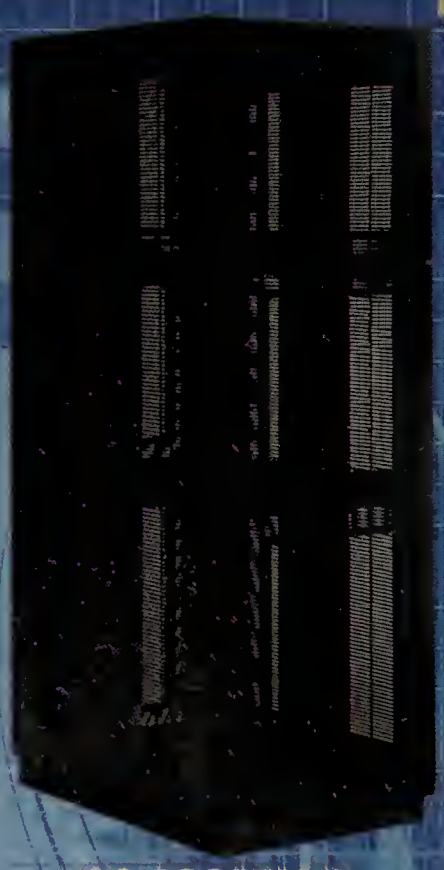

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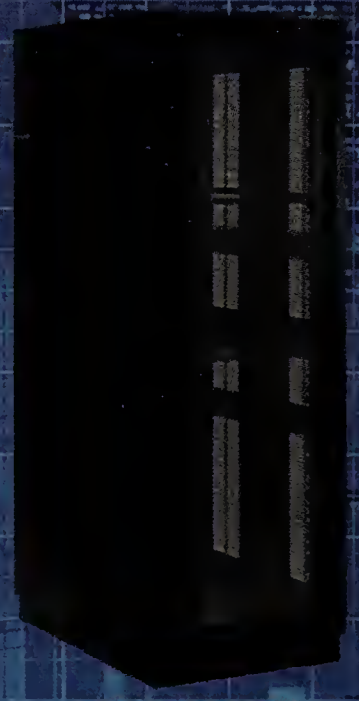

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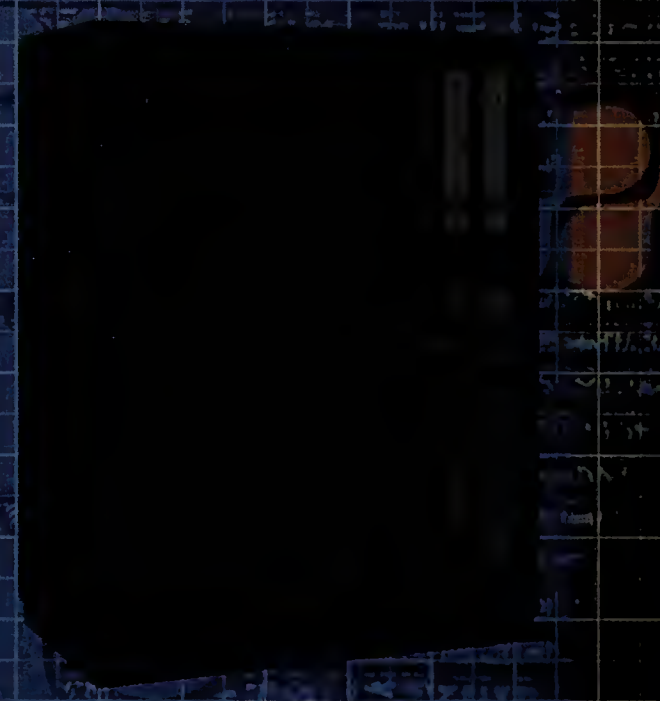

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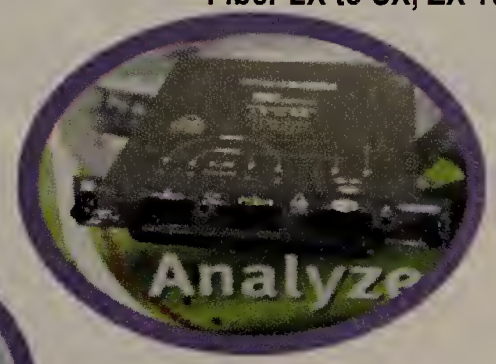

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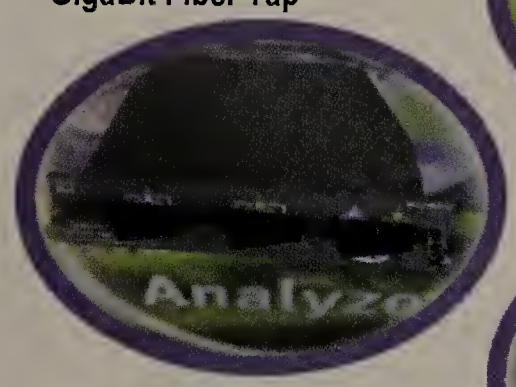

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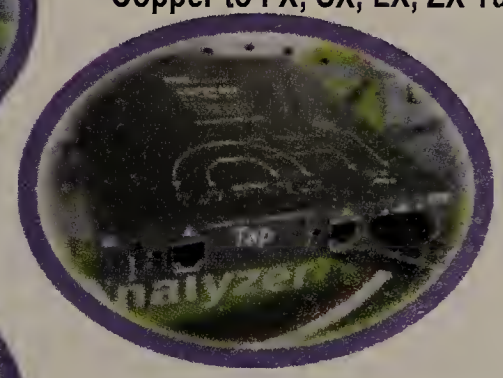

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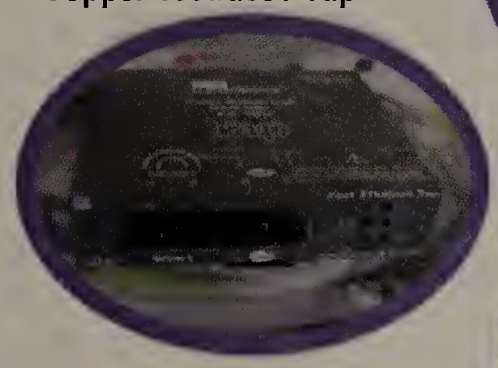

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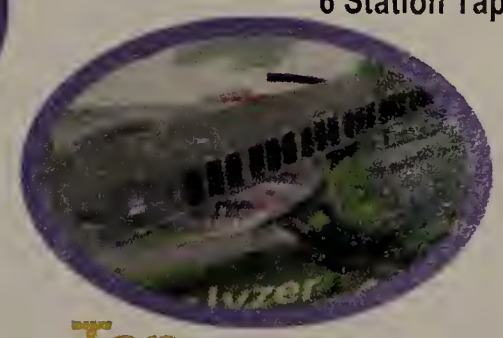

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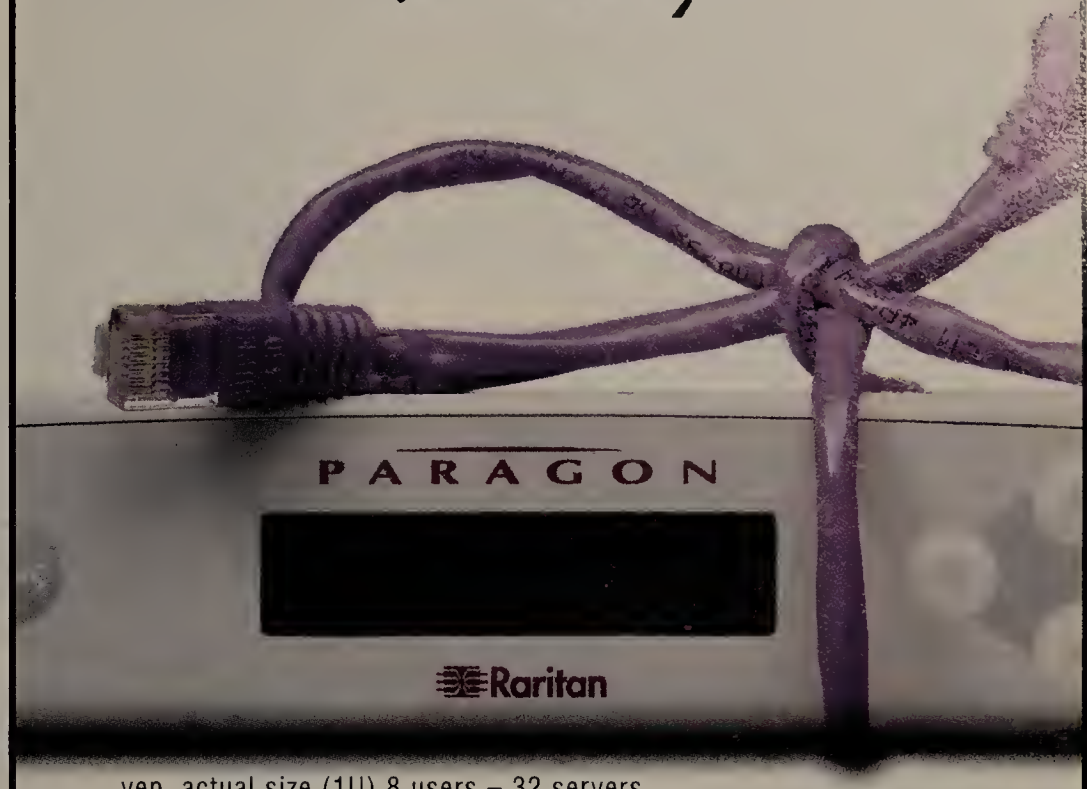

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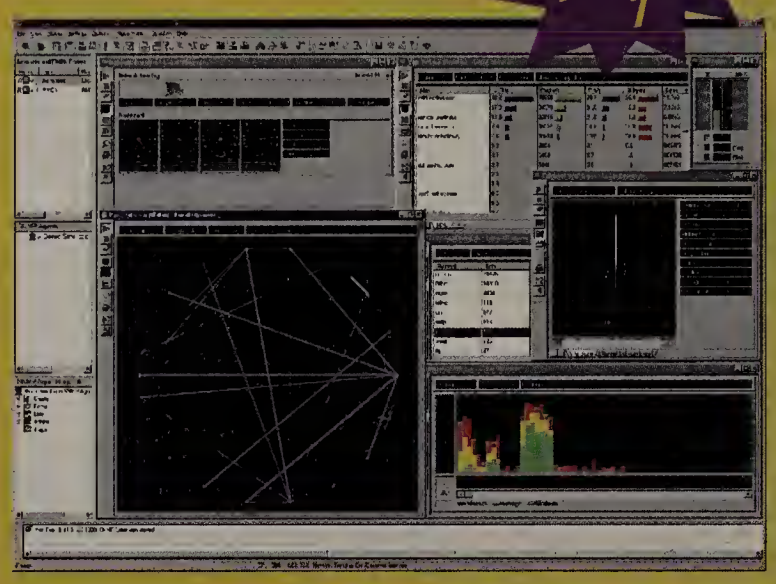

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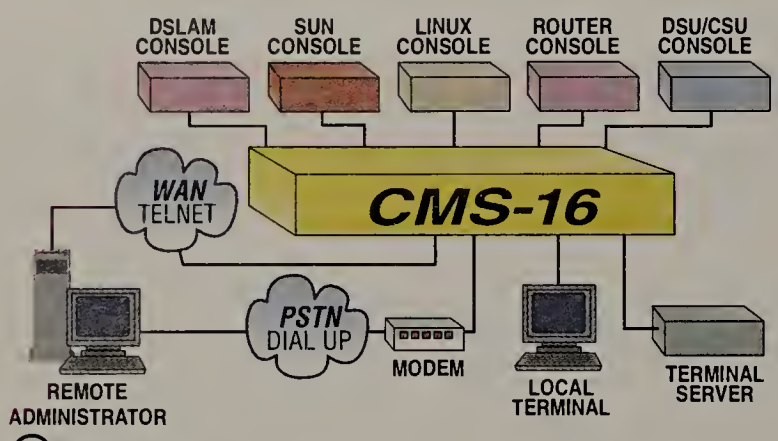

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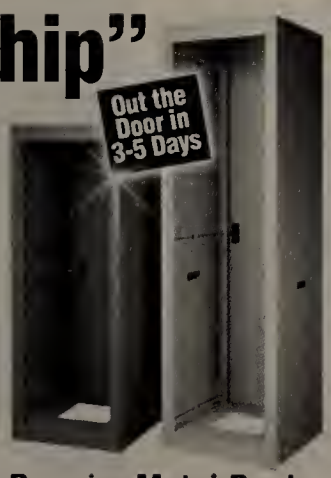

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Mascon Global Ltd., a multinational software consulting company, has a position open for a Business Development Manager. The job requires that the candidate understand the client's I.T. requirements and offer total solution on site or offshore. MBA required with At least 2 years relevant exp. in the s/w services. Preference will be given to individuals who have demonstrated offshore based solution selling. Forward resume w/ref. code BDM#1 to: Mascon-recruiting@masconit.com or mail Mascon Global Ltd., Attn: HR Dept.,1699 E. Woodfield Rd., # 200, Schaumburg, IL 60173

Software Engineer. Design, develop, implement & maintain computer systems, applications, & databases related to clinical trials of pharmaceut projects using SAS, LINUS, & Pharmacy systems. Perform duties related to data manip., security admin., client reporting, VAX admin., & email support. Full-time, day shift, competitive salary. Masters degree in statistics or similar major req'd, as is 6 mo. exp. in job offered or a stat. prog. position. Must have SAS prog. exp. & stat. exp. with clinical trials. Apply: CTG, W. Tankersley, 5875 Castle Cr. Pkwy., Ste 208, Indianapolis, IN 46250-4328

Software Engineer. Web server administration, writing web server applications in Perl and Java using Apache, mod-Perl, CVS, MySOL database, Javascript, DHTML, and CGI based systems. Creation of automated reporting, e-mail, and ftp mechanisms to facilitate merchandising with partners. Must have Master's degree in Computer Science, plus one year related experience, and knowledge of Unix, Perl, Java, MySOL, and Apache. Send resume with cover letter to Art Select, LC, Attn: Mr. Bobby Winn, 300 West Lowe Ave., Fairfield, Iowa 52556.

Looking for an experienced SAP R/3 consultant with at least 6 years experience in the Finance/ Controlling area and with at least 6 full cycle implementations. Willing to travel most of the time. Young company with plenty of room for personal development. Please, send your resume, with salary expectation to jrichard @msc-us.com Reference FI-CO-5.

Software Engineer sought by company in Denver, CO specializing in business software solutions to work in Denver & other unanticipated job sites in the US. Design & develop system software applications &/or software tools that incorporate client/server architecture &/or are web–enabled. The system software interfaces with a variety of relational database management systems & is platform independent. Analyze requirements. Create designs & design documentation. Code, test,& de–bug the software tools. Engage in project management as required. Use C++,SOL, & JAVA in the design & development process. Requires bachelor's or foreign equivalent in comp. sci. or related field (incl. ind'l eng.);working knowledge of software development, C++, & SOL (working knowledge may be gained through academic program or through employment experience). 8am-5pm, M-F; $66,100/yr.(2 opgs.) Respond by resume to James Shimada, Colorado Department of Labor & Employment, Employment & Training Division, Tower II, #400,1515 Arapahoe, Denver, CO 80202,& refer to Job Order Number JL1118242.

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Software Engineer
Assist in developing Legato Standby Server for NetWare. Perform software development tasks as defined by manager of NetWare development team. Use NetWare development tools (editors, compilers, debuggers) to build modules used in NetWare project. Designing, coding and debugging of software modules and fixes for Legato NetWare products in a team environment. 8:00-5:00, $43,670/yr. Requires: B.S. Computer Science. Send resume to Workforce Services attn. Pat Redington Job Order #3061231 140 E. 300 S. SLC UT 84111.

Systems Engineer needed in Evansville area to work closely with professionals in manufacturing, warehousing and distribution and identify their process control requirements. Implement and maintain computer applications, networks, peripherals and systems. Requires competency in information technology including FORTRAN, COBOL, SOL and Rational Databases. Familiarity with other languages including C++, WINDOWS. Hardware knowledge including ALPHA, VAX, PCs, IBM mainframe. Bachelor's degree and experience required. Send resume to Judy Winiger, Vice President Administration, Warehouse Services, Inc., 2101 Highway 69 South, Mt. Vernon, IN 47620.

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Programmer/Analyst (Chicago, IL. client sites): Analyze, design. & develop application systems; prepare documentation. Environment: Unix; Oracle; C; PL/SOL.; Korn Shell Scripts. Master's Degree in Comp. Sci or Math or Engg - 1 yr exp. in job off'd. $70K/yr; 8:30am-5pm; 40 hrs/wk. Must show proof of legal authority to work in U.S. Send resume & cover ltr in duplicate to Illinois Dept of Employment Security; 401 S. State St. 7 North; Chicago, IL 60605. Attn: Joanne Breaux; ref #V-IL 25760 N. Employer paid ad. No calls.

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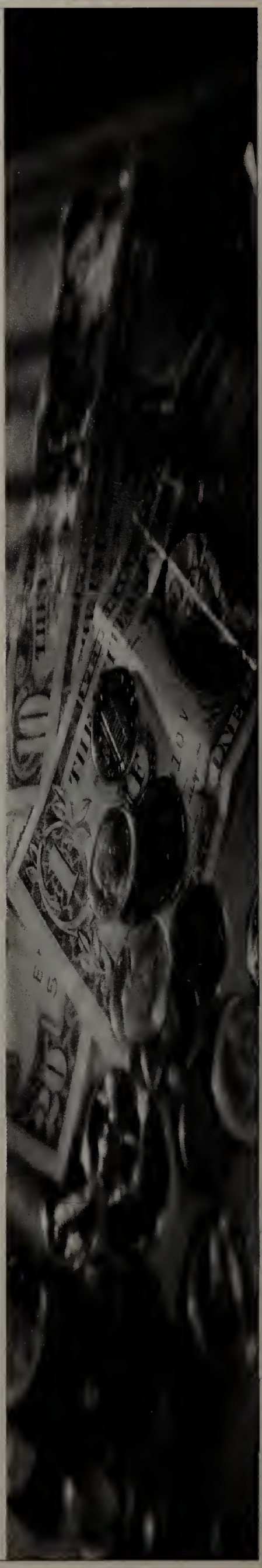

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Software Engineers needed for NJ IT Co. for system admin, s/ware dvlpmt, performance testing & prgm. Apply to Global Consultants, 601 Jefferson Rd, Parsippany, NJ 07054.

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Software Developer (Atlanta, GA): Develop multi-tier applications using C++, Java, CORBA & Rogue Wave Tools & TCP/IP programming. Also develop GUI application w/both Microsoft VC++ for Windows Platform & Unix Platform. Req. BS in Computer Sci./Engineering or other related engineering field plus 2 yrs exp. in job offered. Resume to: HR Manager, CompuCredit Corp., One Ravinia Dr., Ste 500., Atlanta, GA 30346.

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Software Engineer (GUI Developer) - New York, NY. Experience must include design and development of software using Visual C++, Power Builder, Java Script and Lotus Notes. Attractive compensation package. Send resume to Recruiting Department, Millennium Concepts, Inc., 30 Glenn Street, 3rd Floor, White Plains, NY 10603

Data Base Design Analyst: Design and architectural development of web projects and life cycles;establish and maintain client extranet site, provide data management and statistical support, define, create , revise and control data base, using SAS, Visual Basic and SQL. Re MS or related plus 2 yrs. experience. Send resume to PreVision Marketing LLC, 55 Old Bedford Rd. Lincoln, MA 01773 or e-mail to hr@previsionmarketing.com. Ref 416

Computer Programmer: create ordering, shipping, invoicing, and inventory Control programs for Korean/English use.
Must have a minimum Bachelor's in Computer Science, Electronic Engineering, or Foreign equivalent, one year experience with PCLan, Cobol, and HangulWord, and present proof of legal authority for full-time employment in the U.S.
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Team Lead/Systems Engineer of SE Consulting Group: Analyzes customer reqs and proposes a high & detail architectural solution to technically integrate bsn apps with MQ Series, and proprietary products which describes client connectivity w/hardware platforms, operating systems, back-end apps and databases. Develops, oversees and coords the production, analysis, design, testing, and training of computer systms; duties will include prov. leadership to systms engs/consultants responsible for: preparing models and software w/MQSeries, analyzing computer systms/ apps and related software develop w/Visual Basic, ASP, CQBOL, C and/or C++ and w/ diff hardware platforms such as MVS, UNIX, AS400, and client PC's, operating systms OS/390, AIX, HPUX, Sun Solaris, & NT, databases such as Qracle, DB2, UDB, SOL Server, & middleware tech such as MOSeries, MOSI, Workflow, and Websphere. Rev. customer data processing systms, plan & develop testing for software, automation, and scripting; analyze test data and correct systm probs; analyze and test systms and correct errors; provide on-site training at customer site/ supervise system & test engs; oversee software test planning, automation, scripting, & functional/ perf testing of client apps; ensure analysis of user reqs to develop computer systms, & analyze software design to ID & fix prob; and plan and prep tech reports & mem. as doc. of systm design, develop., and testing. Reqs: Master's degree (or equiv Bach.'s + 5 yrs exp.) in comp sci or related field, + 5 years exp in systms anal, develop & software eng., inc. architectural, system-level anal, design and implementation w/ MQSeries/MQ Series Integrator. 40+ hrs/wk/ 8:30 a.m.-5:00 p.m./M-F. Job loc: Tampa. Comp. sal. Respond: CommerceQuest; ATTN: Tom Byrne, 2202 N. Westshore Blvd., Suite 600, Tampa, FL 33607.

Senior Member of Technical Staff - Network Management: (2 openings) Will develop network management solutions for monitoring, maintaining and provisioning the broadband network. Applies knowledge of networking protocols such as TCP/IP, ICMP & expertise in the Java programming language to design and develop network management solutions. Applies expertise in Java programming language to develop Graphical User Interfaces for Network Management products. Applies knowledge of relational database concepts to develop database driven applications for the network management group. Evaluates various tools & technologies available & liaises with engineering team members to recommend to the Senior Management Team the most appropriate technologies to be used for development. Creates functional, design and test specification documents. Must have a Master's degree in CS/CE, E.E. or Electronics Eng., plus 2 yrs experience (exper.) in job offered or 2 yrs exper. in software systems design or development. Must also possess demonstrated expertise in application of the TCP/IP network protocol suite; and in the use of Java programming language to develop both server side (Servlets, JavaServer pages) as well as client side applications. 40+ hrs/wk; 9a to 6p. (M-F); Salary: $85,000/yr. Must have unrestricted authorization to work in U.S. Submit resume in duplicate to: Case #20012088, Labor Exchange Office 19 Staniford St., 1st Flr., Boston, MA 02114., EOE.

Tech Support Engineers - all levels - tech support for fiber optic transmission products using DWDM, ATM, & SQNET. Test automation development in NT & UNIX environ (C,C++, Visual Basic). Setup & use telecommunications test equip. BS in Eng & knowledge of optical theory demonstrated through education or exp. Resumes to: S. McGrew, Hitachi Telecom (USA), Inc., 3617 Pkwy Ln, Norcross, GA 30092

Advertising Supplement

Hot Skills: Oracle

Oracle is among the most prevalent building blocks in the information technology world. Two companies – **Rentals Inc.** of Redwood Shores, CA and **IT Convergence** of San Francisco – call on Oracle as a means of providing service to clients, but in very different ways.

Rentals Inc. is an application service provider for the multi-family housing industry. **Rentals'** web-enabled services provide property managers with a web presence, advertising for their listings, appointment scheduling, online housing applications and access to resident services. "We have about 5,000 customers," explains John Perkins, vice president of engineering. "We try to create a personalized Internet presence for each customer."

In addition, **Rentals** serves as a beta site for Oracle. "This allows our engineers to get a first look at new technologies," says Perkins. "We embrace those technologies that bring a benefit to our customers and work them into our application development. The skills you acquire here are a great investment for your future. You'll touch every aspect of the product, from how it's developed to how it's presented to customers."

IT Convergence, on the other hand, is a consulting firm providing Oracle expertise to a globally based clientele. The company has grown from 20 people in 1998 to more than 200 this year, with offices in the United States, Europe and the Asia-Pacific Rim. The company's focus is on mid-sized firms, ranging from medical manufacturing to banking/securities to semiconductor manufacturing. Joelle Choo, principal consultant for **IT Convergence,** says the firm's approach is to send customers a lean team of consultants who can assist with business process review and reengineering, as well as providing Oracle consultation. "We look at the entire business environment, from operations to back-office processing and management reporting," explains Choo, "and then help the client find the best solution to increase efficiency so the client sees the most improvement possible from using the Oracle product."

Choo says the advantages to employees include the global nature of the work and the diversity of the talented people employed at **IT Convergence.** "On a recent project, I worked on a team with someone from Romania, someone from Singapore and someone from Texas – that makes for a great mix," she says. "While we look for people with technical skills, we also need business acumen. In my instance, I work on Oracle financials – the projects I've worked on have allowed me to learn the accounting standards and local statutory for 80 percent of the world. That's not something most people can gain, but you can at **IT Convergence.**"

Rentals' Perkins says his company is looking for people with proven project success. "We value people who have seen s uccess and failure and have worked on something from start to finish, the full cycle," he says. "We also look for a spark – is the person self-motivated? Does this person engage others in developing the best solution?

"If so, the opportunity is here. You will have lots of responsibility, the ability to contribute. This isn't somewhere that everything has already been decided – you won't be hammering out someone else's ideas."

ITcareers

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- **If you'd like to take part in an upcoming ITcareers feature, contact Janis Crowley, 650.312.0607 or janis_crowley@itcareers.net.**
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IT Careers in the East

The dust may be settling when it comes to jobs on the West Coast, but on the East Coast opportunities continue to develop for IT professionals. Laura Wildemann, associate director of staffing for **Verizon Wireless** in Bedminster, NJ, says the region has plenty of cultural and recreational attractions that make it a great place to work.

"There are all the benefits of the East Coast region – the cultural aspects, strong schools and the diversity of people," she says. "We can be in Manhattan in an hour, at the New Jersey shore in a half hour and in the Pennsylvania countryside in a half hour."

Verizon Wireless has the distinction of being the nation's leading provider of wireless communication. "Our physical presence extends across the country, so there are opportunities with **Verizon Wireless** beyond the East Coast," Wildemann adds. The wireless industry continues to grow, expanding from 110 million users at year-end 2000 to a projected 135.8 million in 2001. *(Source: Merrill Lynch estimate)

"In addition to our wireless network and customer billing systems, there are numerous IT opportunities involving the support of our business systems," says Wildemann. "We are further developing our enterprise efficiency and our web capabilities to enable our business to handle the rapid expansion of wireless applications that we are seeing."

In 2000, **Verizon Wireless** converted data from four human resource systems into one – a project of major magnitude as the company merged the former operations of Bell Atlantic Mobile, AirTouch Cellular, some of the GTE Wireless properties and Primeco Personal Communications. "We took information from four different internal systems and converted them to PeopleSoft," says Wildemann. "At the same time, we're consolidating our billing systems, while we continue to acquire more regional wireless companies."

Verizon Wireless continuously looks for people with PeopleSoft development and implementation experience; web, Java, COBOL and C++ development experience; and for project managers. "We look at the candidate's experience and technical skills and also indicators of leadership and innovation skills that are needed to fit with our dynamic environment."

In addition to the technical opportunities, **Verizon Wireless** promotes an environment of continuous learning and professional development through well-defined career paths and training in both the technical and management arenas, and offers a comprehensive benefits package that includes "Value Appreciation Rights" grants, comparable to stock options in a publicly traded company.

IT careers

For more job opportunities in the east, turn to the pages of ITcareers.

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Materials are due May 10th for the May 14th issue.

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Profiling,
continued from page 1

stores — wasn't really at fault.

Rather, the main problem was the way the company had set up its application, which was delivering information to end users on a per-field basis. In other words, a request for an address would result in the person's first name, last name, street, city and other data being sent separately, with each piece of information taking 1.4 seconds to traverse 2,300 miles along the company's satellite network.

Walgreens came to this conclusion after deploying application profiling software. Such software, while not new, is getting new life as increasingly cost-conscious companies try to get a better handle on application and network performance before investing in big upgrades based on assumptions about dwindling network capacity or older software.

IS APPLICATION PROFILING FOR YOU?

If you're thinking of investing in application profiling software, here are some questions to ask yourself:

- Do I frequently add or update applications to my network?
- Are existing applications failing to meet performance expectations of employees, customers or trading partners?
- Are applications being extended from LAN-only use to WAN use as well?

Once you've determined you want to use application profiling software, IBM suggests you should follow these guidelines related to how the application will impact the network and vice versa:

- Study an application during development.
- Analyze network traffic prior to launching the application.
- Exercise the application by walking it through different network and workload scenarios.
- Develop an application profiling methodology and use it for all new network applications.

The most important tenant to keep in mind, IBM Global Services' Tom Thompson says, is "[you] don't want any surprises when you introduce an application to your network."

"The cost to go back and fix a poorly performing app on your network is exponentially higher than when you catch it in production or even development," says Nate DeWitt, a network performance consultant with IBM Global Services.

To be more specific, he says it costs $1,000 to fix an application during design time, $10,000 to fix at the start of test time, $60,000 to fix later in the testing period. That number almost doubles to $100,000 when you have to fix it after after its been launched on the network.

— Denise Dubie

Simulating network conditions

Users of application profiling products, sold by the likes of Compuware, NetIQ, Network Associates and Opnet, say the software is easy to install and lets them analyze how existing applications are running by tapping into router configuration tables, LAN probes and applications themselves. Perhaps more importantly, such software can be used to simulate how new applications would run if deployed on an existing or upgraded network. The software, which can sit on a dedicated workstation, client workstation or server, typically costs between $10,000 and $25,000.

Gartner analyst Bill Gassman calls such programs "blame-shifting software." That's because the software, by determining an application's footprint, chattiness and bandwidth needs, can show that an application is running poorly because of the application itself and not because network bandwidth is lacking or vice versa. Presented with this information, IT staffers are more likely to stop finger-pointing, he says.

According to Gassman, one common problem these tools uncover is that off-the-shelf applications, such as SAP enterprise resource program packages and Microsoft offerings such as Exchange, tend not to be as aware of a company's particular network as the home-made applications many companies previously relied on.

Surprise discovery

LensCrafters is among the companies that have put application profiling software to use and been surprised by the results.

The eyecare company used the software to troubleshoot performance issues with a Decision Support System application used by 225 remote laptop users. It was taking 15 to 50 minutes — rather than the 10 or fewer minutes it should have taken — for users to download 2.5M bytes of data from a Sybase Open Client database.

LensCrafters assumed the issue had to do with connection speeds, but Compuware's Application Expert software showed otherwise.

The software helped LensCrafters discover about one-quarter of each 2.5M-byte file downloaded contained static code. The company then adjusted the application so that only changed code would be replicated to remote users. That cut download times by 25%, and the company avoided a needless and expensive bandwidth upgrade.

ROLLO PHOTOGRAPHY

LensCrafters' Chris Ray says "you can't just throw bandwidth at a poorly performing application."

"Application Expert has really pointed out that you can't just throw bandwidth at a poorly performing application and expect it to work," says Chris Ray, LensCrafters' director of technical services.

Compuware's Application Expert cost LensCrafters about $20,000, and it took Ray and other team members about six hours to get the server software and network probes up and running and collecting data.

"The first four hours we had it plugged in, jaws dropped. We saw all these things happening that we didn't know were happening," says Steve Bosch, lead network architect at LensCrafters.

IBM Global Services has long used application profiling software when working with clients that are rolling out new applications, says Tom Thompson, a network performance consultant.

The company cites an unnamed customer that was embarking on a $20 million project to consolidate data for a customer relationship management application at a central location for its 200 connected sites.

The customer assumed that adding network bandwidth could accommodate such a large application. But when the IBM consultants performed an application analysis, they discovered the client's planned network would have to be increased four times the capacity originally considered. The cost of the network upgrade would have negated the benefits of the new application, even if it ran perfectly. And all indications were that it would have run terribly anyway.

Thompson says many companies never even think to have their network and application teams collaborate on solving such problems.

"One of the advantages of using tools like these, is that they don't have any opinion," he says. "It doesn't matter who gets the credit or blame. They're not out to protect their turf." ◪

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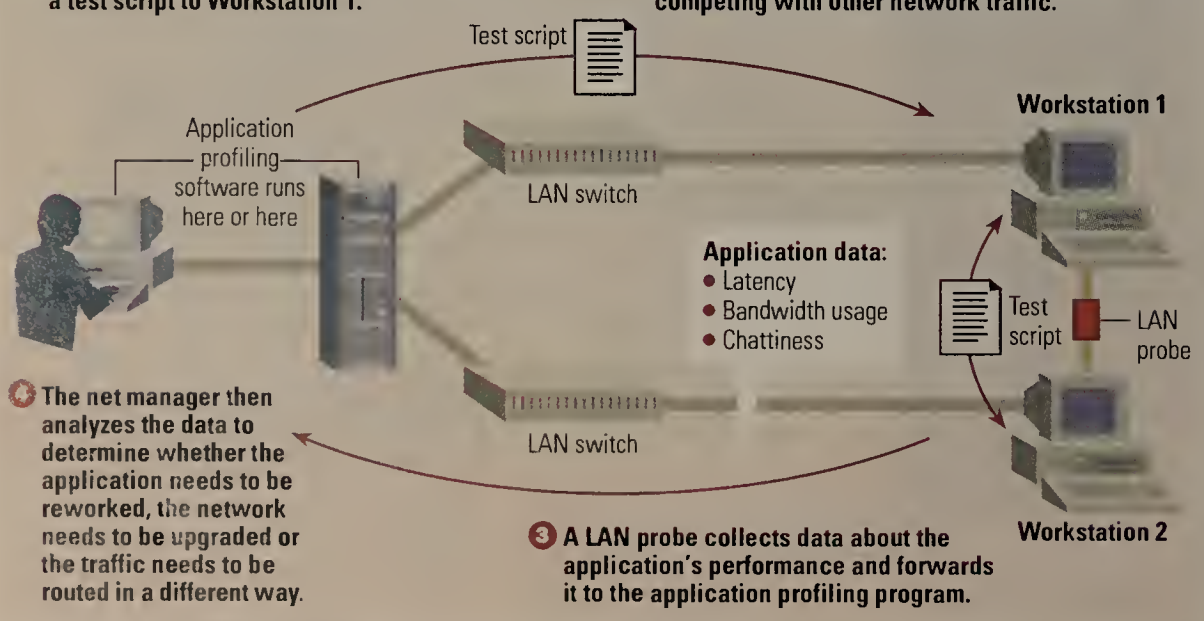
Sneak preview

Application profiling software lets net managers gauge how applications will work on their networks — before actually rolling out the applications.



Adtran,
continued from page 12

"This isn't sexy. . . . This isn't the leading edge, but they'll compete performance-wise and price-wise," says Jeff Phillips, an analyst with TeleChoice.

Adtran, which expanded beyond the carrier equipment market into the enterprise network market two years ago, will compete or customers' VPN dollars against WatchGuard, Sonic Wall and NetScreen, among others.

All the Advanta VPN hardware will sit between WAN routers or modems and LANs, connected via Ethernet ports.

The Advanta 2100 has 2M bit/sec Triple-DES throughput and a 10M bit/sec firewall. It will cost $900 and ship in June.

For larger offices, the Advanta 2300 gateway will include the same firewall and VPN software but feature a third Ethernet port to grant access to public systems such as Web servers. Advanta 2300s will be stackable and companies can load balance traffic across them. The boxes can back up each other, but VPN sessions will not be preserved if a connection is dropped. Adtran could not say how long it would take to rebuild dropped connections.

This device would support about 500 simultaneous IP Security tunnels and include extra processing power to boost Triple-DES throughput to 6M bit/sec.

Using Adtran's N-Form software, administrators could set VPN and firewall policies centrally and push them to remote devices. The boxes will cost $2,500 and ship in the third quarter.

Another new box, the Advanta 2400, will have the same hardware platform as the 2300, but will encrypt at 45M bit/sec by virtue of extra processors. It will cost $7,500 and be available in the fourth quarter.

The VPN client under development by Adtran will give laptop users the ability to call a local ISP and still get access to the VPN. Adtran will customize an existing client from another vendor, possibly SafeNet, to support the Advanta line.

Adtran: www.adtran.com

10G,
continued from page 1

intended to link backbone switch routers.

"Those who say 10 Gigabit Ethernet will only be a service provider technology in the [metropolitan-area network (MAN)] aren't in touch with the needs of many enterprises," says John Rose, CTO at Enterasys.

The company's new Matrix E1 switch is being beta-tested at the particle acceleration laboratories at CERN, a European nuclear research group that says its Gigabit Ethernet backbone will be obsolete by 2002.

"We need to inject 10 Gigabit in the core of our backbone to connect our backbone routers together," says Jacques Altaber, group leader of IT, who plans to try out unannounced 10 Gigabit Ethernet products from Extreme and Foundry as well.

Other Enterasys customers are divided on the pressing need for that much bandwidth.

"That's probably not on the immediate horizon for us," says James Labonte, network engineer at St. John's Hospital in Springfield, Ill. Labonte says his Gigabit Ethernet backbone is nowhere near saturated, but he could see adding 10 Gigabit blades to his X-Pedition switches as the hospital's use of electronic medical imaging increases.

"We will be looking at going to [10 Gigabit Ethernet] when it arrives on the scene," says James Wiedel, director of network technology at the University of Southern California. With multiple, trunked gigabit links connecting his core of SmartSwitch Routers together, Wiedel says, "I could start using 10 Gig today."

Enterasys also plans to ship 10 Gigabit Ethernet modules for its X-Pedition and E7 backbone switches by year-end. Enterasys would not reveal pricing for its Matrix E1, but market research firm IDC estimates per-standard 10 Gigabit Ethernet ports will cost about $2,000.

The issue of who needs that much bandwidth was a hot topic at the Gigabit Ethernet Conference in San Jose last week. In panel discussions, users and vendors debated 10 Gigabit Ethernet's future, with many stating it will mainly be a service provider technology early on.

"The sweet spot for 10 Gigabit Ethernet today is in MAN applications," said Bruce Tolley, manager of emerging technologies for Cisco and a member of the IEEE 802.3ae 10 Gigabit Ethernet Task Force. With increasing use of application service providers, Ethernet WAN carriers and Web hosters, metropolitan networks are approaching the breaking point, he says.

Tolley added that while the standard is technically done, it won't be ratified until March. So he doesn't expect to see many 10 Gigabit Ethernet deployments until then.

MAN provider Telseon has an immediate need for 10G bit/sec technology, said Steve Russell, chief development officer.

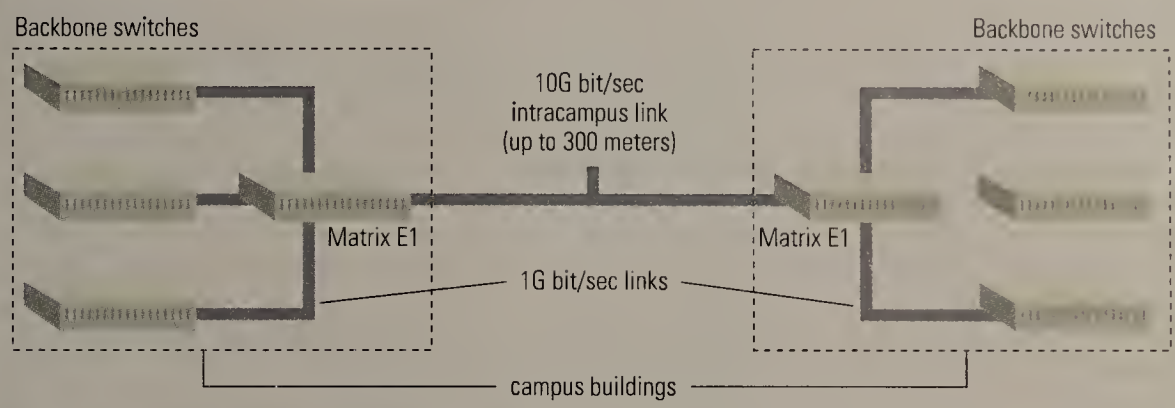
"We like to make sure we have more bandwidth than we have demand," he said, noting that Telseon foresees using 10 Gigabit Ethernet to aggregate gigabit links from the metropolitan edge into the MAN core.

West Virginia University sees 10 Gigabit Ethernet playing a role in its MAN, which links buildings across its campus.

But "we need to get Gigabit in there before we can think about 10 Gigabit Ethernet," says Jeffrey Fritz, principal network engineer at the university, which is migrating from an ATM backbone to Gigabit Ethernet. It could be three to five years before 10 Gigabit Ethernet fits into the mix, Fritz says. ◪

Enterasys goes 10 Gigabit

Here's where the Matrix E1 would fit in an enterprise network.



Informix,
continued from page 8

application to another database will vary greatly depending on the language it's written in," says Ron Flannery, a longtime Informix consultant with One Point Solutions in Novi, Mich. "If IBM is going to continue to maintain the database and the tools, it shouldn't be a problem."

IBM is anxious to avoid problems, because it bought Informix mainly to beef up its share of the Unix/Windows database market, where it lags far behind Oracle. Market researcher Gartner Dataquest's most recent database market share figures (for 1999) show Oracle with a 63% share, far outpacing IBM and Informix, which had shares of 12% and 10%, respectively.

The acquisition should give IBM a better chance to convert Informix users — particularly in vertical markets such as retail where both vendors are strong — into DB2 customers, says Terilyn Palanca, a director at Giga Information Group.

Many Informix users are facing a migration decision in any case: The vendor has been working on a project called Arrowhead that centers around a next-generation database combining object relational features, with high-end analytics and a massively parallel architecture. IBM officials say the DB2 Universal Database already has much of what Arrowhead intended to create.

Perna says IBM will incorporate selective Informix technologies into DB2. Among those being considered are some of Informix's DataBlade modules, which handle spatial and time series data. IBM will also consider technologies acquired by Informix, including data-analysis technologies from RedBrick and a small Java database for handhelds developed by Cloudscape.

IBM is evaluating the widely used Informix 4GL language and tools, and has not yet made any decision on the future of those products, other than to promise continued support. IBM plans to keep most of Informix's 2,500 employees, though some marketing staffers might be let go.

Stripped of its database assets, which accounted for about 80% of revenue, Informix will become Ascential Software when the deal is completed, probably in June.

Last year, Informix split into two businesses: Informix Software for databases; and Ascential, which consisted mainly of data integration software from Ardent, a company bought by Informix in 1999, plus newer content management applications. ◪

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a standard way to represent a user in the directory.

Microsoft wants to create the option to face the directory outward toward the Internet so it becomes a pivotal point in supporting access from outside the firewall to Web applications such as those for e-commerce and .Net, Microsoft's vision of software on the Internet.

The benefit for IT executives committed to Active Directory is the ability to create a consistent layer of directory-based user management across the internal and external portions of their networks. The directory can also support a virtual single sign-on and centralized management point to Web applications running on any platform.

"I don't think that a stand-alone directory is a firm customer requirement."

Peter Houston, Active Directory group program manager, Microsoft

Competitors have already moved their directories to the Web.

IPlanet's Directory Server, an open, general-purpose LDAP directory, now dominates that market. Novell also has moved its eDirectory onto the Web. The hallmarks of those directories are performance, scalability, standard interfaces and operating system independence.

But Microsoft isn't committing to a stand-alone directory.

"I don't think that a stand-alone directory is a firm customer requirement," says Peter Houston, group program manager for Active Directory. "But that doesn't mean we won't make it increasingly easier to deploy [Active Directory] in this [outward-facing] role."

Microsoft is hungry

Observers say for Active Directory to be in that class it needs more LDAP interfaces so applications are not tied to Microsoft's proprietary Active Directory Service Interfaces (ADSI).

"Microsoft is hungry for this extranet market," says John Enck, an analyst with Gartner Group. "They are not getting the application support iPlanet is getting. These Whistler additions are good, but Microsoft still has some more concessions to make to attract applications to the [Active Directory] environment. They can't go after the Web while still mandating the use of proprietary ADSI."

Microsoft's focus now is to use LDAP to more closely integrate Active Directory with Web-based provisioning and access control software. Those products provide an HTTP interface to Web clients into a security layer for internal Web applications using policies and access controls that are stored in a directory. The products also support iPlanet and Novell directories, and some ship with iPlanet Directory Server.

Microsoft is responding to competition, but also to customers who want to simplify their directory infrastructure.

"For our business-to-business relationships we use iPlanet, but our hope is to move Active Directory out there, get off iPlanet, and get a consistent structure both internal and external," says a systems analyst for a large multinational oil and gas company who asked not to be identified.

"It would be nice to get [Active Directory] mature enough to handle that, but we don't think these new features will be all that we need," he says.

Key enhancements

The customer says his company hopes to integrate Active Directory with Netegrity's SiteMinder, which is its strategic platform for Web-access control. "We've found that when you want to tie Active Directory into these non-Microsoft components, it can get squirrelly," he says.

Microsoft officials say they are beginning to fix those issues with two key enhancements to Active Directory in Windows 2002 — scheduled for release early next year.

In addition to support for inetOrgPerson, Microsoft has added a feature called Concurrent Bind that hikes the performance of LDAP communication between Active Directory and access control software such as Netegrity.

Microsoft is imitating features iPlanet has used for years. The features also are part of Novell's eDirectory.

Concurrent Bind creates an open LDAP channel for exchanging authentication requests between the directory and access control software, which Microsoft refers to as a portal gateway. Typically, LDAP will open and close a channel for each request, a process that becomes time-consuming on the Web.

"With [Active Directory] we can handle several hundred authentication requests per second, but Concurrent Bind increases that by a factor of three to five," Microsoft's Houston says.

InetOrgPerson defines a standard object class with such attributes as name, e-mail address, phone and language preference. Application developers can code that standard into their software without having to create a redundant mechanism for Active Directory.

"The [Active Directory] default is that when you create a user, it's a Windows 2000 user," says Bob Worner, vice president of product engineering for OpenNetwork Technologies. "Now you can create users so they are not internal Windows 2000 users."

Holding back

Nearly half of IT executives planning to roll out Windows 2000 in the next year are deferring a full Active Directory deployment indefinitely.

SOURCE: GIGA INFORMATION GROUP SURVEY

It's one of many enhancements that Microsoft needs to make.

"[Active Directory] is still a NOS directory that is lacking on the Internet side," says Nand Mulchandani, CTO for Oblix. "The features they are adding are a step in the right direction, but they alone won't kill iPlanet."

Mulchandani says there still is a need for more flexibility in adding, modifying and deleting schema, which defines the structure of the directory.

"We support any schema you want to load up. We don't mandate the schema like Active Directory," says David McNeely, director of product development for iPlanet.

"They are going to face some of the same challenges we did — their close ties to proprietary interfaces, access to directory services not currently available through LDAP and scalability," says Justin Taylor, chief directory strategist at Novell. "Also, we spent a lot of time making the directory modular and very friendly to other platforms."

Novell's eDirectory runs on Linux, Unix, NetWare and Windows NT and 2000, while Active Directory runs only on Win 2000. ◪

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Enum,
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Meanwhile, another 100 firms have joined NetNumber's free Enum trial since its launch last November. NetNumber has teamed with six vendors, including IP telephone supplier Pingtel and switch supplier NexTone Communications, to provide Enum support on products that will ship later this year.

NeuStar entered the fray last week with the announcement of its own Enum test bed. But NeuStar will only register trial telephone numbers, not real telephone numbers like VeriSign and NetNumber.

"We feel that unless you can properly authenticate and verify real telephone numbers, it's inappropriate to register [them]," Shockey says. "With Enum, there are legitimate issues of privacy and security that still have to be addressed."

All three test bed operators report that Enum works well.

"We have not encountered any surprises," says Lori Whitted, vice president of business development for VeriSign's domain name registry business. "Enum is working as planned."

While the technology is solid, Enum faces significant regulatory hurdles, including which federal agency will oversee deployment.

The Federal Communications Commission regulates telephone numbering, while the Commerce Department handles the Internet domain name system. The State Department, which manages the U.S. government's relationship with the International Telecommunications Union, convened the ongoing industry advisory group.

The advisory group agrees that the U.S. should move forward with Enum but has one major point of contention: whether more than one company can operate the main — or Tier 1 — database of Enum registrations.

Only one database exists for telephone numbers, which NeuStar operates under contract for the U.S. government. But VeriSign argues that competition for that database should exist similar to the registry/registrar model used for domain name registrations.

"The technology of Enum is relatively simple, but the politics are relatively hard," Shockey says.

Industry observers expect Enum to surmount these political hurdles and being being deployed in enterprise networks as early as next year. Indeed, many multinational firms are already testing Enum services with NetNumber.

"Voice over IP is coming on strong," says NetNumber CEO Glenn Marchel. "It's clear that Enum is going to play a central role in that architecture as it's developed and deployed." ◪

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Backspin

The cat is out of the bag (wow)

MARK GIBBS

"Wow!" I said. I was talking to my colleague Dave Powell, who had just discovered full-length, reasonably high-resolution copies of the movie "Tomb Raider" in several archives on the Internet (the film is not due for release until mid-year) and this pointed out just how insidious piracy has become.

I said "wow" again a few seconds later when I had a revelation: The Internet, rather like a black hole, has swallowed us and we can never go back. By "swallowed us," I mean that the 'Net has consumed our whole society. The cultural implications of the Internet are far greater than the transformations wrought by the Renaissance or the Industrial Revolution because of the speed and scope of the changes involved.

Take the change in the work habits of millions of people due to the Internet. Not only has telecommuting become significantly more common, but many people work completely differently due to e-mail. E-mail allows a more demanding contact with our companies and customers, and it fosters new stresses and strains on our lives.

But the real issues arise in the areas of morals and ethics. I've written extensively about the moral issues of stealing music through downloading MP3 files, but there's a whole universe of other ethical problems that the Internet enables simply because the 'Net allows anonymity and access to thoughts and ideas in ways undreamt of in history.

People with warped or deviant interests can virtually indulge them online without fear of exposure and consequent social ostracism. Like the idea of dressing in rubber, or being humiliated? Or being dressed as and treated like a baby despite being a "mature adult"? On the 'Net, you can explore these issues to your heart's content and no one will know you're a pervert. Does that matter?

Want to view extreme porn or look at photographs of accidents or see autopsies or learn how to make bombs and kill people with poison? It's all there, waiting for your prurient interest to find.

And now we have a new ethical problem — materials on the 'Net that are, in effect, cartoons of taboo and illegal events and practices.

For example, are animations of pornography really pornography? How about animations of "snuff" films (films depicting people being murdered) — are they the same as the real thing? How about cartoons of "kiddie porn"? Is that the same as real kiddie porn?

These kinds of materials are extremely problematic. If we say they aren't to be tolerated, then are we saying that we accept the need for what could be seen as the "thought police" (remember, they aren't real)? That's a dangerous path to follow. Without the 'Net, these ethical problems wouldn't exist in public discourse — they would have stayed below the public radar and would have been ignored. So, what do we do?

It has been argued that making this dreck available is in the interests of society — it gives the disturbed and perverted a channel to blow off steam. The opposite has also been argued — that the availability of such materials creates rather than neutralizes the more monstrous desires of our more twisted fellows. I have yet to see proof either way.

But as a society should we tolerate public availability of such materials on the Internet? Should we allow even the smallest chance that our children should stumble unwittingly into such things?

I have no answers (no big surprise there) but I have concerns about the kind of society we will become if we don't develop a public ethic that allows us to deal rationally rather than emotionally with these problems.

But the ethical and moral cats are out of the bag, along with the hundreds and thousands of other issues that the Internet raises, and there's no way that they are going to be rebagged.

"Wow" doesn't began to cover it.

Your exclamations to nw column@gibbs.com.

'NET BUZZ

The latest on the Internet industry

PAUL MCNAMARA

Today's knee-buckling economy doesn't exactly have enterprise buyers welcoming untested vendors with champagne, party hats and blank checks.

Octopus CEO Steve Douty reads the business pages, yet he's confident his 2-year-old Palo Alto company stands ready to make a splash today with the introduction of its Meta Application Platform. The software and services package lets a company provide workers and clients with on-demand access to the freshest information from a variety of internal and external data sources, all viewed through a highly customizable user interface.

Octopus isn't the first vendor to wrap its tentacles around this challenge, but Douty believes his company's approach breaks ground on both the front and back ends of the equation.

It's a reasonably compelling story. That interface will be cool for those hardy souls inclined to tinker with such tools. And the list of supported data types and information sources looks impressive.

The question is whether network executives will give Octopus the time of day.

"The pace of buying software has slowed down for everyone," Douty acknowledges. "And the days of the multimillion enterprise software deal are probably limited."

Which means Douty sees his company making hay initially on the departmental level by targeting sales organizations and customer-support teams. Keys to success will be documenting return on investment — they haven't yet — and convincing potential customers that Octopus can unlock the value of a company's expensive software systems that may remain hidden to front-line workers.

Octopus already has a marquee customer — **Standard & Poors** — as well as big-name financial backers in **Redpoint Ventures' Geoff Yang** and the ubiquitous **Marc Andreessen**, who has kicked in $3 million out of his overstuffed wallet.

Douty was one of the first employees at Hotmail, so he's seen big-time success first-hand.

That was then; this is now. And then was a whole lot easier.

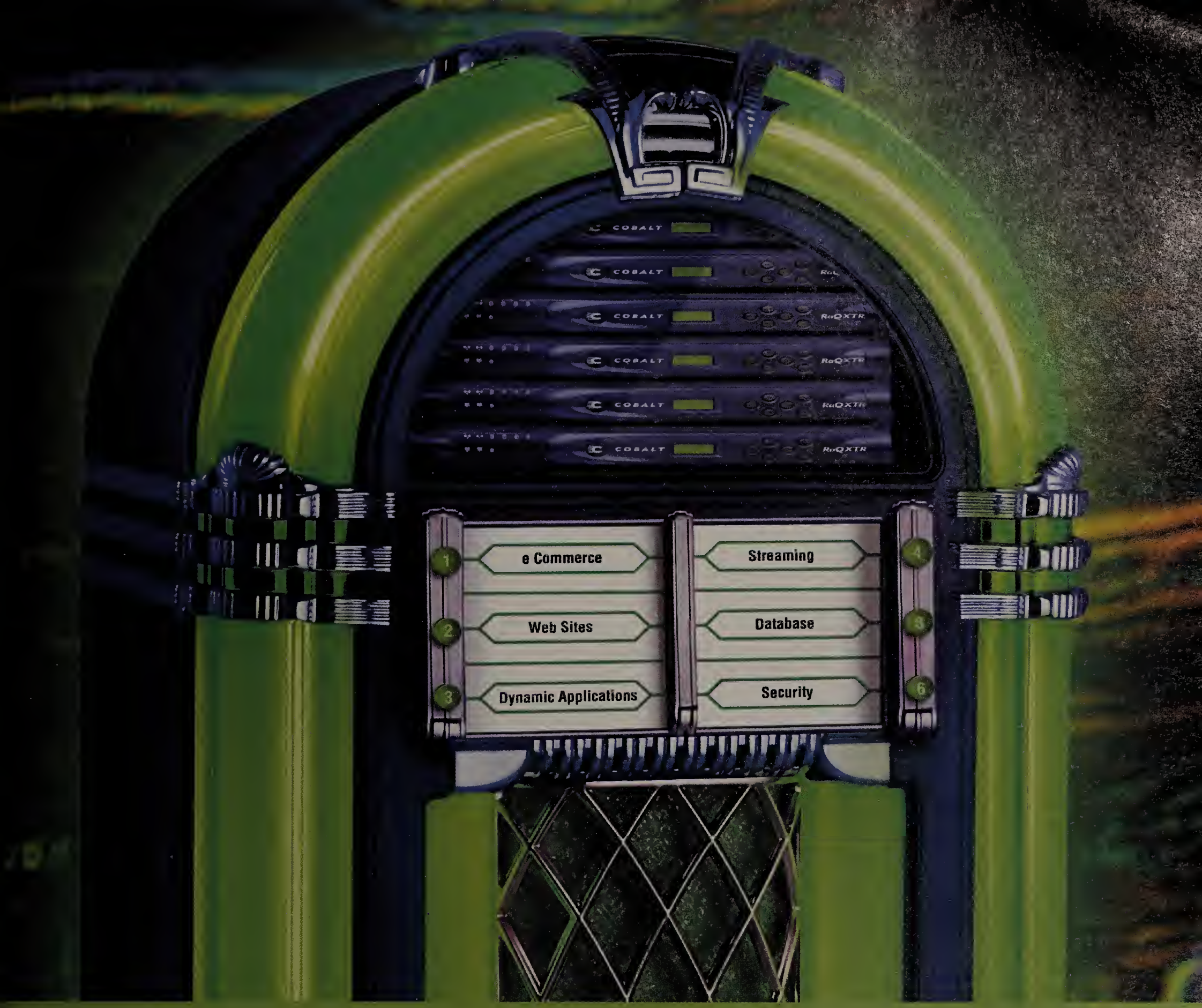
There are at least three ways to look at the decision by Cisco CEO **John Chambers** to slash his $1.3 million salary to $1:

- He earned this cut. Chambers has held command during a stunning reversal of fortunes that has seen Cisco tumble from the throne of the industry so swiftly it has redefined the phrase Internet speed.
- The "sacrifice" on his part is symbolic. Sure, $1.3 million is real coin even to the wealthy, but Chambers won't be toting a bag lunch, mowing his own lawn or fretting about his kids' tuition. Nor will he be among the 8,500 Cisco employees clutching pink slips.
- Finally, this gesture by Chambers was absolutely, positively the right thing to do and ought to be emulated by other top execs at foundering companies. Whether you're a layoff victim, a surviving Cisco employee or an investor (Disclosure: Buzz owns Cisco stock in a retirement account), you'll at least be able to take solace in knowing the boss isn't completely oblivious to your pain.

We don't do Web-surfing recommendations here as a rule, but let's make an exception for a gem found on a popular site called **"Astronomy Picture of the Day."** This ugly URL will bring you to an amazing composite photo called "Earth at Night" that was taken by the Air Force's Defense Meteorological Satellites Program: http://antwrp.gsfc.nasa.gov/apod/image/0011/earthlights_dmsp_big.jpg

A few observations about the photo: The contrast in the illumination levels between North America and South America is remarkable, but nowhere near as stark as the difference between North Korea and South Korea. Also, forget about those commercials for Foster's beer and Outback Steakhouse. This photo proves no one actually lives in Australia.

Only you can help a columnist see the light. Send your comments about this space to buzz@nww.com.



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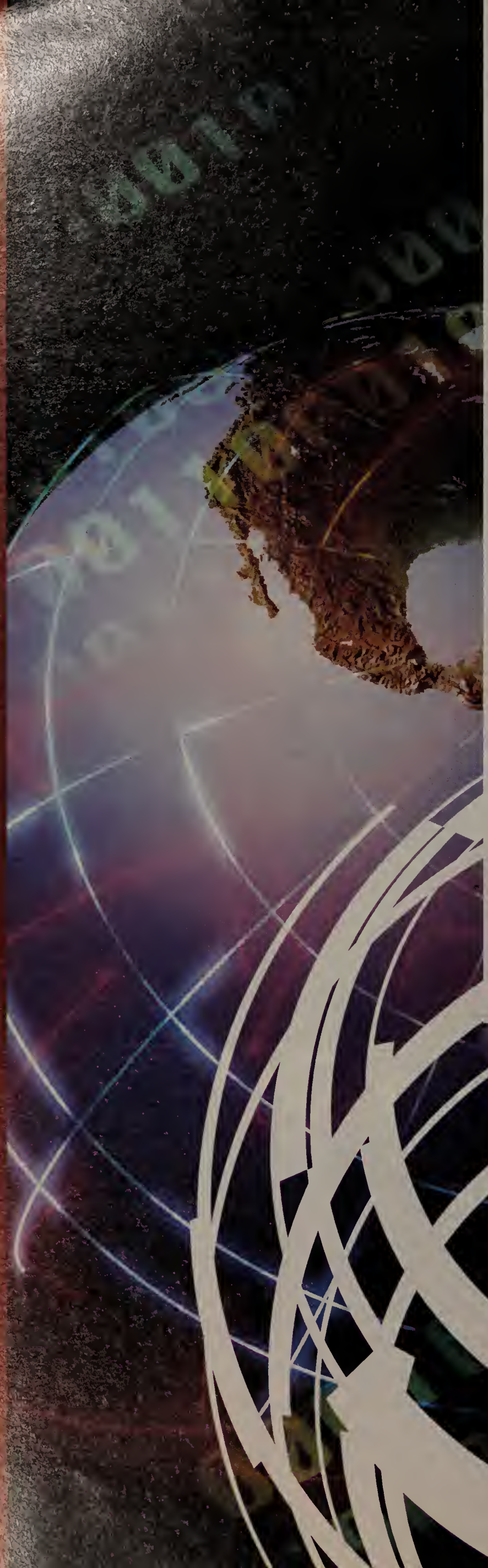

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